Occupational HAZARDS

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THERE'S PROFIT IN PREVENTION

MARCH
1948

How do your costs compare... with these ?

SEE PAGE 12

ROUTE TO
YOUR PLANT
RE PROTECTION
MEN: FEATURE
SECTION ON
RE PROTECTION
FOR INDUSTRY

IN THIS ISSUE: ACTUAL FIGURES OF AN IMPORTANT INDUSTRIAL PLANT CONCERNING TYPICAL COST OF ACCIDENTS TO THE EMPLOYER.

The Jury Reports...

HERE'S A CASE where you are the judge and the jury. Shown in the photo are plating tanks equipped with Kirk & Blum Fume Control Systems. Note the clear, healthy atmosphere . . . the complete absence of fumes. Compare this view with fume-filled plating shops you have known—and there's not much question as to the verdict you'll render.

● Unchecked fumes create unhealthy working conditions, lowered production and careless work. They attack electrical wiring, motors and other equipment resulting in expensive repairs or replacements.

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FUME CONTROL SYSTEMS

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. . . Victoria and Albert Museum

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† *Encyclopaedia Britannica*

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There is Nothing Finer For All General Occupational Skin Cleansing

49-C

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—a plus blend of emollients including lanolin

G. H. PACKWOOD MANUFACTURING CO.
Manufacturers of Fine Industrial Skin Cleansers
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The use of PAX SULPHONATED OIL SKIN CLEANSER may be indicated for only those workers whose occupations sensitize and cause severe defatting and irritation of the skin. It is not recommended as a substitute for PAX NEUTRALIZED GRANULATED SKIN CLEANSERS which should be used to thoroughly cleanse the skin.

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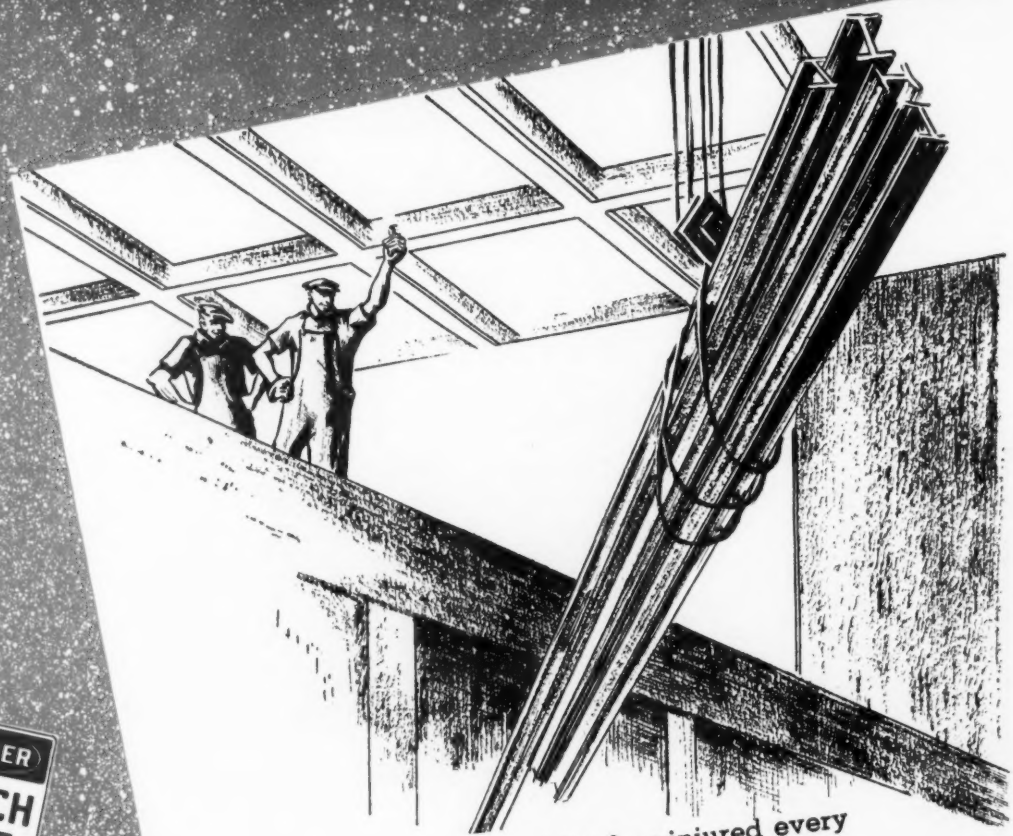
PAX HYSPEED has also gained national acceptance because of its outstanding efficiency, safety and economical bulk which have made it the quality but inexpensive leader among all granulated skin cleansers made without an emollient.

FALLING HAZARD SIGNS



Hundreds of workers are killed or injured every year by falling . . . or by objects falling on them. People fall over things carelessly left in the way; fall down stairs, off ladders and in other ways. Many are hurt by objects falling on them from cranes, shelves, scaffolds . . . it's a long list of hazardous situations.

STONEHOUSE SIGNS

FOR ACCIDENT PREVENTION

Help to reduce Falling hazards. Many such signs are shown in Stonehouse Catalog No. 8. It's Free on request.

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Stonehouse SIGNS, INC.
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ACCIDENT PREVENTION SIGNS IN STANDARD COLORS AND DESIGNS

ROTO-CLONE

removes the double danger of fibrous, greasy dust

DUST presented a double danger in the polishing department of Mouldings, Inc., Indianapolis, Ind., producers of stainless steel moulding for the automotive field. Buffing metal moulding strip produces a fibrous, greasy dust which is both a fire and health hazard. Here, as in scores of plants, Type N Roto-Clones solve the problem by wet collection of the material.

View showing three of 14 Type N Roto-Clones collecting buffing dust in this modern plant.

The Type N Roto-Clone* Hydro-Static Precipitator combines centrifugal forces and intimate intermixing of water and dust-laden air for extremely high cleaning efficiency. It is compact in design, has no moving parts to foul, requires little maintenance and the once dangerous dust is easily removed in harmless sludge form.

The Type N Roto-Clone is available for servicing individual stands, as illustrated, or for use with central system exhausting a group of dust sources. For complete information write for copy of Bulletin No. 277 or contact your local AAF representative.

AMERICAN AIR FILTER CO., INC.
366 Central Avenue, Louisville 8, Ky.
In Canada: Darling Bros., Ltd., Montreal, P. Q.

*Roto-Clone is the trade-mark (Reg. U. S. Pat. Off.) of the American Air Filter Company, Inc., for various dust collectors of the dynamic precipitator and hydro-static precipitator types.

AAF

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DUST CONTROL EQUIPMENT

— A *Finnell* SCRUBBER-VACUUM DOES ALL . . . at *BIG* Savings in Labor Costs!

Clean floors—so important to worker safety and morale—reflect good management. Large-area floors that are cleaned with a *Finnell Combination Scrubber-Vacuum* reflect good management for still another reason. They tell a story of big savings effected in labor costs. For example, the *Finnell Scrubber-Vacuum* illustrated above, with one or two operators, does a cleaning job better in half the time it takes a crew of six to eight using separate equipment for scrubbing and picking up. This *Self-Propelled Finnell* is a complete cleaning unit *all in one*—it applies the cleanser, scrubs, rinses if required, and picks up. Has a cleaning capacity up to 8,750 sq. ft. per hour!

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The nearby *Finnell Floor Specialist and Engineer* is readily available for free floor survey, demonstration, or consultation . . . and for training your maintenance operators in the proper use of *Finnell* equipment. Phone or write nearest *Finnell* branch or Finnell System, Inc., *3503* East St., Elkhart, Ind. Canadian Office: Ottawa, Ont.

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FINNELL SYSTEM, INC.

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Occupational HAZARDS

VOLUME 10 • No. 5

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12 Reasons Why

HY-TEST Safety Shoes

ARE FIRST CHOICE OF AMERICA'S LEADING SAFETY DIRECTORS

1 SOFT DURABLE QUALITY UPPER LEATHERS
2 SAFE-EZE BACK . . . ONE-PIECE QUARTER . . . NO RIPPING OR BINDING
3 ONE-PIECE SOLE LEATHER COUNTERS . . . LEATHER COUNTER POCKETS
4 STEEL SHANK FOR GREATER SUPPORT AT ARCH
5 7-IRON FULL-GEMMED OAK LEATHER INSOLE
6 SOLES OF THE FINEST QUALITY MATERIALS
7 AUSTEMPERED ANCHOR FLANGE STEEL BOX TOE
8 REGULAR SHOE LAST
9 TOUGH BOX TOE LINER PROTECTS VAMP LINING
10 SHOCK ABSORBING FELT DOUBLER
11 SLANT-EZE TOP FOR LACING COMFORT

12

FULL RANGE OF SIZES, TYPES AND STYLES FOR EVERY SAFETY NEED

- **50 DIFFERENT TYPES**
- **9 DIFFERENT KINDS OF SOLES**
- **WIDTHS AA-EEE, SIZES 5-15**
- **5 LASTS (Dress & Work)**
- **WELT AND NAILED CONSTRUCTION**

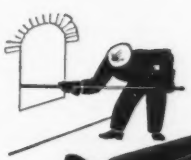
5 of HY-TEST's 50 Safety Shoe Types

H712—Men's Brown Kip Blu Oxford—Leather Sole—Half Rubber Heel.

H711—Men's Russet Glove Moc Blu Oxford—Leather Sole—Half Rubber Heel.

H661-4—Men's Black Retan Moulders Nullifier—Comp. and Chrome Lea. Full Double Sole—Rbr. Heel.

H722-1-Men's Russet Glove Lace-to-toe Blucher—Cord Sole—Rubber Heel.

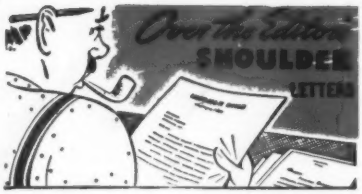


H727—Men's Black Glove Blu—Composition and Leather Full Double Sole—Rubber Heel.

...Insure Workers Feet In Sure Protection

HY-TEST Safety Shoes

HY-TEST DIVISION • INTERNATIONAL SHOE COMPANY • ST. LOUIS 3, MISSOURI • EASTERN OFFICE • MANCHESTER, N. H.



Do you have any questions, theories or ideas concerning industrial health or safety? If you want to give them a good airing—send 'em along. We'll publish all space permits.

Crane Booms

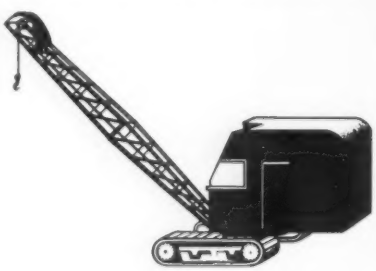
OCCUPATIONAL HAZARDS:

It is common to read about accidents in which crane booms strike high tension wires and operators or helpers are electrocuted as a result.

My personal opinion of such accidents is that the foreman in charge of the crane crew and riggers is at fault. It is he who should check on all such hazards in the vicinity of the job in order to direct work in a manner safe to workman and property.

Just to make sure such accidents can't happen, however, I make the following suggestion:

Why not an insulated bonnet for the end of the boom which would shield the boom from any contact with live wires? I am enclosing a rough sketch of the hood I suggest should be placed on all mobile type cranes for the prevention of live wire contacts. The hood should be



made of a good, sturdy insulation material and be grounded. With this device, it would be impossible for a live wire to strike the end of the boom. It's only an idea, and I'm offering it in the hope that it meets with the approval of someone and that it will be the means of saving some worker from getting hurt. Would like to get comments on this idea.—S. M. Norton, Safety Engineer, 1516 Benton St., Alameda, Calif.

It sounds good to us—how about those comments, readers?—Ed.

Putting on the Pressure

OCCUPATIONAL HAZARDS:

I have read with much interest your December, 1947 issue of OCCUPATIONAL HAZARDS and was particularly interested in an item appearing on page 16—"Accidents in the News."

In regard to the news story from the Long Island City, N. Y., Star and Journal and the statement under the section—"Prevention," did you really mean to publish that comment about pressure and pressure gages and the advice that 15 pounds "Gage" pressure on pressure equipment was a safe condition to open

(Continued to Page 44)

Carries Away Overspray . . .
IN A WHIRLING TORNADO OF WATER

PAINT-LADEN AIR IS "TORNADO" CLEANED. Operators, working in a Schmieg Centri-Merge Spray Booth, are adequately protected from fire and fumes. Overspray is carried on an air stream *horizontally* away from work into a curtain of water, pressure-fed through slots extending continuously full width of booth, that descends down the flood sheet. The mixture of fume and paint-laden air and water is then whirled under the flood sheet and hurled with tremendous impact against the impingement wall at back of booth. Down this impingement wall flows an additional sheet of water that floods the foreign matter, pounded out in the process, into the sludge tank below. Only CLEAN AIR passes through exhaust fan. Thus the danger of fire is suppressed both in front and behind the flood sheet. Because the ratio of water and air is far greater in Centri-Merge, paint and other gummy substances do not pile up on the hard-to-get-at walls of the chamber behind the flood sheet; therefore, cost of repeated cleanings is eliminated.

Consult Schmieg engineers regarding your problems of dust and fume control.

THE *best* AIR PURGE is CENTRI-MERGE

Schmieg INDUSTRIES INC.
Engineers & Manufacturers
303 PIQUETTE AVENUE • DETROIT 2, MICHIGAN

IF the safety record of your company's employees is a responsibility of yours, you should be vitally interested in a program which has a proved record of reducing accident rates by amounts up to twenty per cent. Based on the scientific finding that *visual skills* are an index to workers' production efficiency and accident records, the Bausch & Lomb Industrial Vision Service is the result of more than eight years of scientific research. A complete, compact, and easily administered system, it assists in job placement and identifies workers who are most likely to benefit from professional eye care. In your plant, as in dozens of others, it can improve safety records, increase production, step up quality, reduce labor turnover and lower training costs. Send coupon for the whole story.

BAUSCH & LOMB

OPTICAL COMPANY ROCHESTER 2, N.Y.

SEND FOR THE DOLLARS-AND-CENTS FACTS ABOUT IMPROVED SAFETY RECORDS MADE POSSIBLE BY THE BAUSCH & LOMB INDUSTRIAL VISION SERVICE

Industrial Vision Department
Bausch & Lomb Optical Co.
745-P St. Paul St., Rochester 2, N. Y.

Please send me a copy of "Vision in Industry" and details of the Bausch & Lomb Industrial Vision Service.

NAME.....

TITLE.....

COMPANY.....

STREET..... STATE.....

CITY.....

SAFETY SHOE Buyer's guide

KNOW WHAT YOU NEED.....

COMPOSITE PICTURE OF LEHIGH QUALITY CONSTRUCTION
Heavy Duty Goodyear Welt

1 —Smooth top-facing won't chafe ankles
2 —Sturdy leather upper stock
3 —Strong, sole leather counter protects heel
4 —Comfortable, leather inside counter pocket
5 —Smooth, grain leather innersole
6 —Arch-supporting steel shank for comfort
7 —Lehigh rubber heel, metal-washer nailed
8 —Felt insulation over steel toe box
9 —Drill-lined vamp and quarter
10 —Fibre toe box inside steel toe
11 —Genuine Goodyear Welt sole construction
12 —LOCKRIM* STEEL TOE BOX
13 —Full double soles, Chrotan outersole

SHOE CONSTRUCTION—Here are 14 specific elements of Lehigh quality construction. A knowledge of these features and their functions is necessary to assure adequate safety shoe wear and service. You'll find them all in the Lehigh line.

CHROTAN LEATHER SOLE
Flexible, long-wearing, easy under-foot. Right for general service.

RUGGED CORD-COMPOSITION SOLE
Long wear and non-skid footing on rough, wet, slippery surfaces.

CHROME LEATHER SOLE
Extra tough, non-porous. For abrasive, caustic or oily floor conditions.

NEO-CORD "OIL FIGHTER" SOLE
Positive traction; outwears any sole on severe oily floors. Won't rot, or pick up oily metal chips and shavings.

GRID RUBBER SOLE
Lasting service, safe-footing on highly abrasive or damp floors.

VUL-CORK SKID-PROOF SOLE
Exceptionally high traction on smooth or slippery-dry floors; long wear.

OAK LEATHER SOLE
Lightweight, flexible, durable. Ideal for executives and foremen.

Lehigh builds the most complete line of safety shoes to lick the specialized

Safety shoe buying should never be slap-dash. There's too much at stake for slip-shod choosing. That's why Lehigh prepared this complete Buyers' Guide. Examine each component part of the Lehigh shoe—then follow this simple plan when choosing a safety shoe:

Fit the job—For extra tough service, most outdoor jobs, acid or caustic conditions—choose a nailed-construction shoe. For general industrial use, most indoor jobs—choose a Goodyear Welt. Lehigh shoes can handle most of the foot safety problems in industry today.

Fit the floor—Lehigh has a special sole to meet most floor hazards. Every one will out-wear ordinary leather under specific conditions, and help prevent bone-breaking slips and falls where these added hazards exist.

Fit the man—Besides the extra-comfort features engineered into every shoe, Lehigh offers AA to EEE widths, sizes 4 to 16, and a patented Scientific Shoe Sizer that assures proper fitting even with untrained fitters.

You can fit the job, the floor and the man with LEHIGHS.

. . . AND **KNOW** YOU'RE GETTING IT!

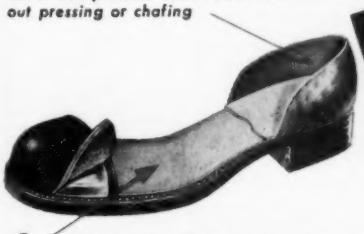
1. GENUINE GOODYEAR WELT CONSTRUCTION—*for most indoor jobs. Finest, full-sewed method used in the best grades of men's shoes. Provides maximum flexibility, long wear and comfort. Can be resoled indefinitely*

2. STRONG NAILED CONSTRUCTION—*for outdoors or heavy duty. Sturdiest type of safety shoe. Stands up under most gruelling conditions—no welting stitches to rot under acid and caustic conditions. Gives long wear*

3. "BLUCHER"—*provides extra "give" and comfort across the instep*

4. "BAL"—*for smart "dress appearance."*

5. SOLE LEATHER INNER COUNTER—*cups and protects entire heel. Ideal fit without pressing or chafing*



6. SMOOTH, SANDED INNERSOLE—*grain leather for cool, smooth comfort*

7. STURDY, OUTSIDE BACKSTAY—*(in some styles) Extra wide; molds back of shoe to foot. Prevents chafing and wearing through.*

8. SEAMLESS BACK—*new, quality, comfort-construction . . . eliminates heel irritation and tearing at back.*

9. EXTRA FIBRE TOE BOX—*fitted under steel toe. Insulates foot against temperature of the metal*

10. WING ARCH INNERSOLE—*(in some styles) Positive, healthful support for weak arches*

11. BLUE STEEL SHANK—*adds strength and wear to all heavy duty types.*

12. TEMPERED STEEL SHANK—*Spring action provides flexibility and support in lighter types.*

13. ORTHOPEDIC HEEL—*extends forward under arch adding strength and support. Helps to prevent weakened ankles from "rolling inward."*

14. THE FAMOUS *Lockrim

STEEL TOE BOX—*Here is the big reason men's toes are safe in Lehighs. It's high carbon cold rolled steel, Austempered for added strength to maintain safe clearance under violent impact. Unique patented Lockrim* eliminates sharp edges that might cut down into sole. Locks toe box securely in place—can't shift or tilt for life of shoe. Only Lehighs are made with the Lockrim* Steel Toe Box!*

See them all** in the first completely new Safety Shoe Catalog in years! Send today for Lehigh Safety Shoe **Catalog #14 C.

LEHIGH
Division of the ENDICOTT JOHNSON CORPORATION
SAFETY SHOE COMPANY
ALLENTOWN, PA.
WESTERN OFFICE: 12th AND SPRUCE, ST. LOUIS 2, MO.

problems of every industry!

*T M REG

Here's a study that furnishes a yardstick in computing cost of injuries . . .

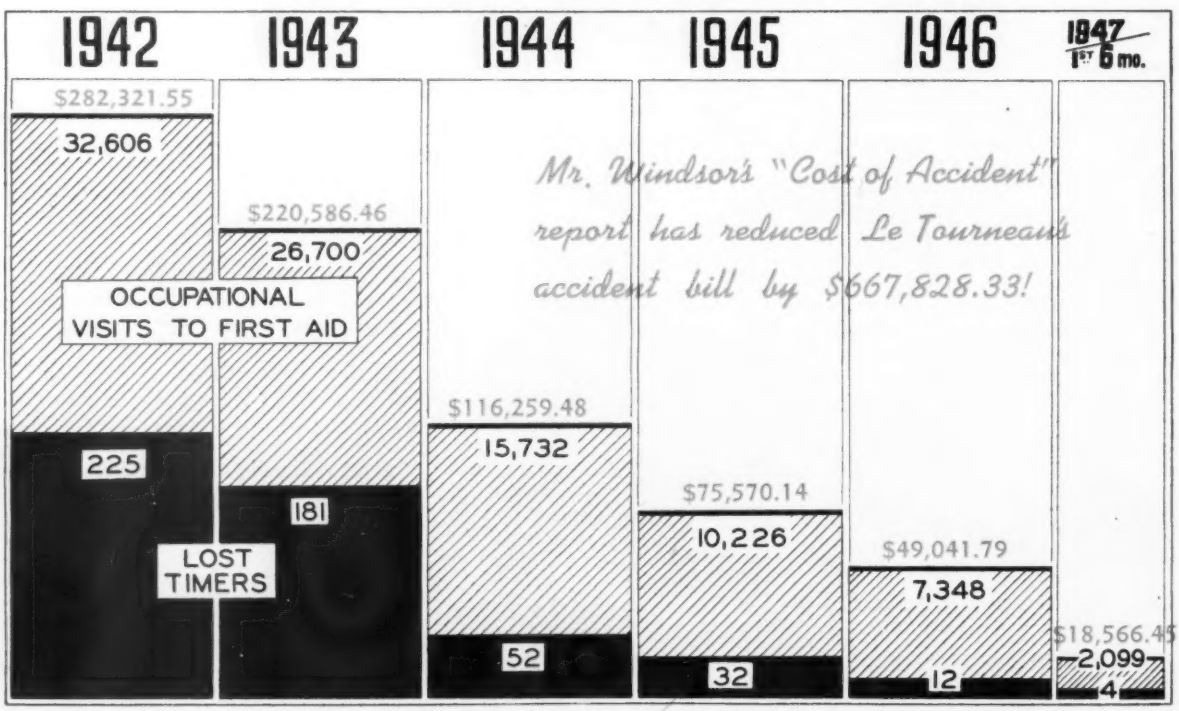
HOW DO YOUR COSTS COMPARE . . . . . WITH THESE?

Industry has an estimated $2,400,000 yearly accident bill. In the hard, specific terms of dollars and cents, this report concerns itself with costs and typical production losses resulting from dermatitis cases, foot and toe injuries, eye injuries, hand and finger injuries, amputations, and other types of industrial accidents, familiar to every plant. No attempt is made here to editorialize on eliminating conditions hazardous to health and safety. That is the job of the regular editorial content of Occupational Hazards magazine, as well as the job of the products and services advertised therein. Here is a report that simply tells us how much accidents cost in a typical industrial plant—and why!

ACCIDENTAL injuries are costly to the employer, the injured man, his family, and to society in general. To the employer, occupational injuries are an important cost in production. Some of the costs are: time lost by the employee and paid for by the employer, overhead continuing while the injured man is away from the job, medical expenses, compensation and permanent disability payments.

Few, if any, studies have been made by industrial plants to determine the cost to the employer in dollars and cents of their occupational injuries. Such a study could be valuable to a company in (1) providing it with one of the cost items (occupational injuries) in the production of its products; (2) providing a measuring unit (dollars and cents) for studying costs of accidents in the plant; (3) furnishing a meas-

REDUCTION OF NUMBER AND COSTS OF OCCUPATIONAL INJURIES



Paul Windsor,

Director of Safety at Le Tourneau, Inc., has devoted a large portion of his efforts since 1944 in compiling the figures which make up his extensive "Cost of Accidents" report, from which the accompanying article presentation is based. Credited with having saved his company $667,828.33, Mr. Windsor's Safety Department has reduced the number of accidents from a yearly high of 32,606 (225 lost time) to only 2,099 (8 lost time) accidents during the first six months of 1947. This report which embraces a study of 3,853 cases of industrial accidents is of great value to all management because it deals directly with management's stake in the field of accident prevention. OCCUPATIONAL HAZARDS magazine is proud to have been chosen to present these important figures, released for the first time in their entirety, to industry.

uring unit for purposes of comparison, that is, the company may compare its safety record over a period of years or months on the basis of costs of accidents as well as in terms of frequency or severity; (4) stimulating an interest in reducing accidental injuries.

Knowing that such a study would be of value to his company, Paul Windsor, Director of Safety at Le Tourneau, Inc., analyzed the problem in 1944 and started going after the answers. Now, three years later, he has come up with a report that not only has already proved its value to his company, but a report that can be of equal value to all industry.

On November 30, 1947, Mr. Windsor completed a study of 3,853 actual cases of industrial injuries in his plant. The scope of his study included an analysis of the following important phases of the problem—in determining costs to his employer of typical cases of occupational injuries:

(1) Number of first aid calls, including number of first aid calls on employer's time and those made on employee's time—time lost because of the first aid call or calls—total employer's time lost and working days absent because of the injury.
(2) Certain items of medical, disability and compensation expense to the employer because of the injury.
(3) Certain costs and total costs to the employer of each type of injury and member of the body injured.

Source of Data

The material for this study was collected from the following sources: (1) First aid accident reports; (2) The company physician's reports; (3) Monthly and yearly summary reports by the head nurse of the first aid dispensaries; (4) Final report and settlement receipts of the Insurance Department; (5) Hourly wage and overhead-cost records of the Cost Accounting Department; (Even the cost of machining parts is included in overhead.—Ed.) (6) Receipts in the office of the Insurance Department; (7) The records of the Tabulating Department relating to the cost to that department for tabulating, recording and reporting occupational injuries; (8) Records of the Safety Department; (9) Employees who suffered injuries in this study; (10) Foremen and supervisors of the injured employees; (11) Records in the Safety Department made by a safety engineer through observing and timing injured employee waiting for or receiving medical service.

NEXT MONTH

DERMATITIS

$28.03

First Aid Calls

While collecting data for the study of costs of occupational injuries, numerous visits were made by a safety engineer to the main dispensary at Le Tourneau's Peoria plant in order to determine how much time was lost per call from the job by the injured worker.

Two factors entered into the time lost. One was travelling time from the job to the dispensary and return, the other was actual time spent in the dispensary. This time allowance had to be made because some work areas are much farther than others from the dispensary and, therefore, require more travelling time. Certain allowances were made for these differences and such allowances were checked many times by following a worker to the dispensary from his job in the various work areas and noting time spent. Total time away from job was obtained by adding time actually spent at dispensary and travelling time.

A safety engineer timed all cases included in Mr. Windsor's study. Care was taken to exclude calls during which workers were resting, having X-rays taken or receiving heat treatments.

Computing Medical Expenses

The purpose of this phase of the study was to study the items of medical expense involved in the treatment of various types of injuries included in Mr. Windsor's report and to indicate in what percentage of the cases compensation or permanent disability was allowed.

Medical expense includes time spent by first aid nurse on the case, medical supplies, X-rays, doctor's services, hospital care and transportation.

The figures representing nurse's time spent on a case include the total time that was used in caring for an

injured worker and in making out the First Aid Accident Report. The amount of time depended upon the time used for the worker's first call, time used for re-dressings, and the number of calls made at first aid because of the injury. A safety Engineer actually timed the cases as they appeared for treatment at the first aid station. The cases were chosen at random over the period of time covered by the report.

Medical supplies include bandages and medicine used at the first aid station in the treatment of occupational injuries X-rays used at the plant were charged as an expense and those taken at the hospital were included by Mr. Windsor as part of hospital care. Doctor's calls were usually made at the first aid station where the doctor sees the injured workers. However, calls at doctor's office by injured workers and special calls by the doctor at the hospital are included in the report.

Data concerning compensation, disability, hospital expense and lump sum settlements were copied from final report and settlement receipts which are on file in the office of the safety department.

Overhead Costs

The two factors considered in the overhead cost of injuries are employer's time lost in hours and the continuing overhead charges for the department while the worker was away from the job. For the purpose of this study the overhead continues during total employer's time a worker is away from his job. Data on the overhead percents were obtained from the Cost Accounting Department. This data included the copy of the hourly wage cost and the hourly overhead cost of plant operation. The cost of machining parts is included in this category.

Types of Injuries and Number Studied

The report was concluded on November 30, 1947. At that time the records included a complete study of 3,853 cases of industrial injuries.

Types of injuries included in this study included case histories of lacerations, abrasions and contusions of the foot or toe, hand or finger, arm, leg, and head injuries. Costs of strains, sprains, eye injuries, burns, dermatitis cases, infections, amputations and electrical shocks make up a major part of the report.

Sample studies were made in most type injuries, cases being chosen at random at various times over the period of months included in the report. No attempt was made in the report to determine the cost of accidents to employees, such as loss of earnings while recovering from the injury.

An attempt was made by Mr. Windsor to determine the cost to the employer of time lost by workers who stopped work to assist or because of curiosity when an accident occurred. Another item which enters into the cost of accidents from the employer's standpoint is the continuation of wages of the injured worker in full after his return to the job even though the services of the worker may, for a time, be worth much less than their normal value. Though much data was collected on both of these cost items, information was found to be incomplete and subjective and so were not used.

All figures used by Mr. Windsor in his final report are reliable and substantiated. They admit no room for questioning as far as their accuracy or authenticity is concerned.

The report proves that all types of occupational injuries cost money to management. These costs are broken down into the various separate factors which were used to compute the total costs. Individual studies of various types of industrial accidents will be presented in the following issues of this magazine. Each study will reveal the methods and means used to arrive at the final figures given in Mr. Windsor's "Cost of Accidents" report — figures which can be used by safety directors and engineers throughout industry as a yardstick to prove to top management the value of continuing and increasing the ways and means of preventing industrial injuries within their respective plants.

TABLE 100 — COSTS IN DOLLARS, TO THE EMPLOYER, OF INFECTIONS

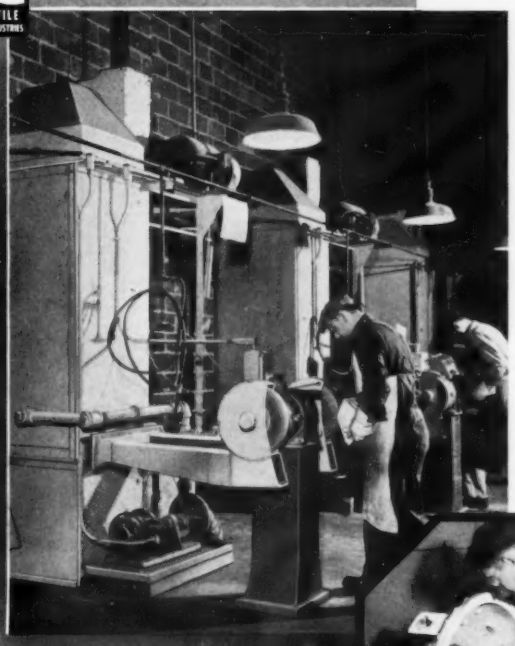
Case No.	Dept. No.	Time Lost By Employee	Overhead	Administration	Medical Expense							Compensation	Disability	Grand Total Cost
					Nurse's Time	Doctor's Services Excluding Operations Casts	Operations Sutures Casts, etc.	Medicine and Bandage	X-rays	Hospital	Transportation	Total			
4	058	2.59	4.95	3.98	.814	15.50	.....	.312	.....	43.20	.85	60.68	42.81	.....	115.01
16	053	6.05	11.66	3.98	.754	5.00	7.08	.144	.05	50.41	.85	64.29	12.59	.....	98.57
13	157	8.80	16.96	3.98	1.839	9.50	.....	.720	.....	36.65	.....	48.71	15.11	.....	93.56
6	103	1.98	4.85	3.98	.214	3.00	7.08	.072	.....	52.74	.....	63.11	12.59	.....	86.51
18	220	4.15	8.01	.2775	.394	3.00	7.08	.144	.....	40.73	.....	51.35	.....	.....	63.79
14	066	2.11	4.07	3.98	.214	3.00	7.08	.072	.....	40.39	.....	50.76	.....	.....	60.92
10	072	3.58	7.07	3.98	.334	6.50	.....	.120	.....	31.83	.....	38.78	.....	.....	53.41
17	109	12.10	29.61	.2775	1.474	6.50	.....	.504	.....	.....	.....	8.48	.....	.....	50.47
5	112	.42	.93	3.98	.334	6.50	.....	.120	.....	22.98	.....	29.93	10.08	.....	45.34
15	102	9.46	23.15	2.775	.454	8.00	.....	.168	.....	.....	.....	8.62	.....	.....	41.51
11	120	.33	.63	3.98	.214	3.50	.....	.072	.....	25.39	.....	29.18	.....	.....	34.12
12	123	.....	.....	3.98	.514	6.50	.....	.192	.....	.....	.....	7.21	.....	.....	11.19
19	112	2.81	6.30	.2775	.394	.....	.....	.144	.....	.....	.....	.55	.....	.....	9.94
2	216	1.77	3.97	.2775	.334	2.00	.....	.096	.....	.....	.....	2.43	.....	.....	8.45
8	083	2.20	4.24	.2775	.274	.....	.....	.096	.....	.....	.....	.37	.....	.....	7.09
9	083	1.06	3.39	.2775	.334	.....	.....	.120	.....	.....	.....	.45	.....	.....	5.18
7	213	1.25	2.80	.2775	.214	.....	.....	.072	.....	.....	.....	.29	.....	.....	4.62
3	110	1.25	2.80	.2775	.094	.....	.....	.024	.....	.....	.....	.12	.....	.....	4.45
20	058	.92	1.77	.2775	.094	.....	.....	.024	.....	.....	.....	.12	.....	.....	3.09
1	103	.33	.81	.2775	.094	.....	.....	.024	.....	.....	.....	.12	.....	.....	1.54
Average.....		3.16	6.90	1.93	.47			.16				23.28			39.94

Compensation and Permanent Disability Costs

Total compensation and permanent disability costs are not items of medical expense. They are important costs in the total cost of occupational injuries. These payments were copied from the final report and settlement receipts of the office of the Department of Insurance.

Magnesium DUST CONTROL

see our CATALOG in SWEET'S FILE MECHANICAL INDUSTRIES



MAGNESIUM ALLOYS ARE SUPPLANTING BASE METALS! The rapid expansion of plants producing these alloys has created some fire and explosion hazards.

The performance records of most plants show that the fabrication of magnesium alloy products can be done with safety when proper steps are taken to control these hazards present in the various stages of processing.

HYDRO-WHIRL

PETERS-DALTON, INC.
17904 Ryan Road, Detroit 12, Mich.

GENTLEMEN:

- ☐ Please have a representative call
- ☐ Please send your latest literature

We are interested in:

- ☐ A complete finishing system
- ☐ Metal parts washers
- ☐ Paint spray booths
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Signed _____ Company _____

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PETERS DALTON Inc.

17900 RYAN ROAD • DETROIT 12, MICH.

INDUSTRIAL
Accidents in the News . . .

These accidents are taken from the pages of the Nations Newspapers. They've all happened—they didn't have to!

Kansas City, Mo., Star:

William Teasdale, 34 years old, was treated today for a cut on the face at General Hospital No. 2. An employee of the Weber Engine company, 1101 Winchester avenue, he was injured in the firm's foundry when an emery wheel broke, sending out flying fragments.

Prevention:

In most cases, grinding wheel failure can be attributed to one or more of the following typical causes:

1. Wrong wheel for the job,
2. Careless handling,
3. Improper mounting,
4. Excessive speed, or
5. Undue pressure.

Wheels should be equipped with protective flanges and specifications of the manufacturer should always be followed concerning their use and installation.

◆

Wheeling, W. Va., Intelligencer:

Lewis Shaw, 26, of Bridgeport, is in Martins Ferry hospital suffering from serious scalds about the head and shoulders which he received while at work in a Ferry industrial plant. It was said that a heavy chain on a crane broke and hot couplings fell in a vat of scalding water which splashed over the upper part of his body.

Prevention:

Since chain slings are often used, where failure might endanger human life or property, they should be inspected regularly for defects and annealed as often as such inspections show this to be necessary. See pages 30 and 31 of the January issue of OCCUPATIONAL HAZARDS for details of inspection and annealing chain slings.

◆

Indianapolis, Ind., Star:

A 19-year-old punch press operator suffered three mangled fingers on her left hand yesterday in an industrial accident at Karpex Manufacturing Company, 1436 East 19th Street. Police said Mrs. Betty Jean Ziko caught her hand in a punch press. Her condition was reported as "fair" at the Methodist Hospital.

Prevention:

Each month we receive dozens of such clippings describing punch press accidents from our national clipping service bureau. All punch press accidents are the result of negligence on the part of someone. In most cases, had the press been equipped with an adequate guard, the injury would not have been sustained. Sometimes the operator himself is to blame because of an act of "carelessness." However, if the worker is properly trained and if the punch press is adequately guarded, this type of accident would no longer appear on these pages.

◆

Cleveland, O., News

Kazumi Nadaoka, 32, was taken to Glenville Hospital with burns on face and hands resulting from the explosion of a large metal drum he was cutting with an acetylene torch at the Michael Oldsmobile Co.

Prevention:

Beware of so-called "empty drums." They are frequently more hazardous than tanks or drums partially filled with gasoline or other volatile liquid. The fumes or vapors remaining in "empty" drums are usually highly explosive. Before any cutting or welding operation, such tanks should be thoroughly cleared of vapors. Probably the most common method of "vapor-freeing" is steaming.

◆

Portland, Ore., Journal:

Two men suffered only slight injuries when the skyhook they were riding with 10 tons of steel pipe broke from its cable and dropped them 80 feet to the ground at Pointer - Willamette proving ground, NE 194th avenue and Glisan street.

Walter Ivan Harris, 31, and Walter Wood Seil, 27, suffered possible rib fractures, face and body abrasions and shock, reports Deputy Sheriff Ralph Kennedy. The men were given first aid and removed to Providence Hospital.

Prevention:

That these men were not killed outright as a result of their 80-foot fall is nearly miraculous. Steel riggers should never ride on hoisted loads, slings or hooks. If a job is to be kept safe, this rule should be enforced by the men in charge of construction. Loads should not be swung over any person nor should anyone be permitted to walk under any suspended load.

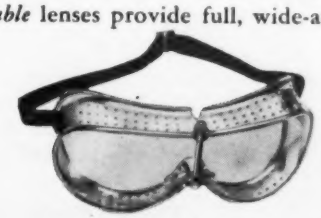
"PANORAM"

...an inspired name for a wide-vision

SAFETY GOGGLE

...and this AO Product is better than its Name!

This popular plastic goggle pleases both the worker who seeks sure protection *over* his prescription glasses and the man who needs protective goggles *only*. The *replaceable* lenses provide full, wide-angle vision and with the lightweight frames, may be had either clear or in green acetate. There's overall comfort in frames closely conforming to forehead and face . . . a bridge which fits any nose without irritation or pressure . . . eyecups vented to reduce fogging of lenses. Your nearest AO Representative can give you full information about the Panoram Goggle for combating hazards common to chipping, grinding, riveting and similar operations.



American Optical COMPANY *Safety Division*

SOUTHBRIDGE, MASSACHUSETTS • BRANCHES IN PRINCIPAL INDUSTRIAL CITIES

Look Behind...

STEEL'S LOW ACCIDENT

The American Iron and Steel Institute have reported that steel mills have brought down their accident frequency rate to about half of the average for all industries combined. Largely responsible for this excellent record are the engineers who are responsible for the steel worker's health and safety as well as plant fire protection activities.

Plant Protection men use a resuscitator to revive a workman felled by gas.

STEEL mills have brought their accident frequency rate to about half of the average for all industries combined according to a recent report by the American Iron and Steel Institute.

Much of the credit for this record belongs to men like J. L. MacKenzie, director of safety in the Chicago steel works which in 1906 started the first organized safety campaign in the country.

Mr. MacKenzie heads a diversified department with a single aim—safety. Five safety inspectors, a sanitary inspector, and the superintendent of plant protection are all pledged to keep accidents to a minimum. Their equipment is the finest.

From the time a new employee starts work, MacKenzie and his helpers go to work on him. First he is shown an induction film which explains the plant's overall operation, and some of the general safety rules he is expected to follow. When he is assigned to a specific job, safe procedure is an integral part of his training, and the use of protective equipment is stressed.

With all this instruction standardized, MacKenzie still must reckon with the human element. He feels that 90 per cent of all accidents are "mental errors of judgment," and only 10 per cent due to failure of equipment. This simply means that personal problems may so weigh on the mind of a worker that he becomes careless. A good supervisor knows his men, and notices the first signs of preoccupation. When a man indicates that his mind is not fully applied to his work, he is referred to the "Good Fellows' Club," where his coworkers can help to relieve a man's mind of financial or family problems whenever possible.

NTRATE!

Despite all precautions and educational measures, some accidents will happen. The director of safety is responsible for seeing that their seriousness is minimized. An alarm system calls out one of the plant's ambulances, first aid is administered, and the injured man is sped to the hospital on company property. Doctors and nurses are available to treat the patient. Modern X-ray equipment is at hand to help in a speedy diagnosis; in a serious case a man may be hospitalized at the plant until it is possible to remove him to a larger local hospital.

MacKenzie has been in safety work for fifteen years. He spent seven of them studying each division of the plant separately, and learned the problems of each. The result is a well-organized crew of 90 men who can reach and handle any emergency in three minutes. This is remarkable considering that the plant employs 14,000 people and is one of the world's largest. Of course, the safety department has some help. More than half of the workers are trained in first aid and the fire fighting force gets experienced supplemental assistance, too.

MacKenzie is in charge of plant fire protection activities.

Fire equipment includes 15 sprinkler systems and 1000 extinguishers. Because of the many types of fire which could flare up, there are five different kinds of extinguishers, each plainly marked.

Only authorized personnel and persons with special passes are allowed in the plant. This arrangement is for the protection of the workers as well as visitors. Alcoholic beverages are not allowed on the premises for obvious reasons.

Fires usually start accidentally. A damaging fire could cause many injuries to workers. Thus, fire prevention equipment performs similar protective functions as the hospital, ambulances, X-ray equipment, etc.

MacKenzie has a tough but rewarding job, for the results are both tangible and worthwhile. The ultimate goal is an unbroken row of green lights on the safety bulletin boards every day, for that is the symbol of perfection in safety.

Jack L. MacKenzie, Safety Director, is shown modern X-ray equipment by Dr. Edward Murphy.

The steel plant's fire engine and crew extinguish a fire speedily.

SKIN DISEASES IN INDUSTRY

Every year, industrial skin diseases affect one out of every hundred workers. Suitable protective measures to prevent skin contact with irritant substances can reduce this loss to production and earning power. Employees exposed to such hazards can avoid unnecessary sickness if they follow the health rules recommended in this article based on the pamphlet "SKIN DISEASES IN INDUSTRY" prepared by the Department of National Health and Welfare of Canada.

THE skin is a wonderful and important feature of the body structure and in many ways is involved in the maintenance of health and fitness. As a flexible and elastic covering over the whole body, the skin is a protection against minor injury and bacterial infection. *A healthy skin is an armour against outside enemies—a break in that armour is "bad business."*

Industrial Sources

Skin diseases resulting from industrial exposure may occur in almost any field of work. They are most prevalent among workers in the following industries and trades:

Metal Industries
Electro Plating
Food Industries
Building and Construction
Cement, Glass and Pottery
Rubber Industry
Chemical Industry
Clothing and Textiles
Leather and Fur
Paper and Printing
Furniture

How Skin Diseases Occur

Poor personal hygiene is one of the important causes of skin diseases. Regular and proper washing habits are essential for healthy skin.

Physical injury and contact with irritant materials may result in skin diseases. Careless handling of materials, unclean working conditions and unsanitary personal habits should be avoided in order to keep the skin healthy.

Industrial Hazards to Avoid

Burns, friction, cuts, extreme cold or heat injure the skin and open the way for infection. Strong acids, alkalies and corrosives are general irritants that take water out of the skin and destroy skin cells. Naphtha, petroleum, benzol and other fat solvents remove the fat and protective layer of the skin, exposing the skin underneath. Oil and grease may injure the skin by blocking the pores and hair follicles and introducing infection. Certain chemicals containing mercury, chromium, zinc, and other metals injure the skin by their chemical action.

Specific Irritants

These substances do not affect everybody but cause skin lesions in certain hypersensitive people. There are hundreds of substances met in the course of daily life that may cause a severe skin reaction. Some of the most common ones in industry are: oils and greases, dyes, explosives, rubber accelerators and anti-oxidants, natural and synthetic resins and waxes, insecticides, phot-developers, coal tar and its derivatives.

Skin trouble from specific irritants usually demands permanent removal of the affected worker from exposure, though hardening does occur in some instances. As a rule, only a small number of exposed workers are affected.

Many plants are irritating to certain individuals. Among the most common plant irritants are poison ivy, poison sumac, poison oak, pyrethrum flowers, primrose, various woods, etc.

Infections

Infections of the skin may arise from hides, waste, and other material containing disease-producing bacteria, parasites and fungi.

Symptoms

Warning signs of industrial skin diseases are so varied that it is impossible to list them all. The first signs are usually itching and burning of the affected parts, with a slight reddening of the skin. If the irritation continues, then blisters and swelling may form. These signs are usually limited to exposed parts of the skin.

Whenever any sign of skin disorder appears, workers should not neglect it. They should report at once to the first-aid room or physician, and no attempt made at self-treatment as it may make the condition worse. Treatment should be undertaken by the plant medical department. Early removal from exposure and placement at alternative work is essential, if disability is to be avoided.

Employees should remember that *early* discovery and *early* treatment make for a shorter and more curable disability. A neglected skin disease may develop into a dangerous illness with unnecessry discomfort. *Don't wait until the damage is done!*

Prevention

The control of industrial skin diseases depends upon the active interest of both the employer and employee. Co-operative maintenance of personal and plant hygiene will go far to eliminate industrial skin diseases. The following measures are important in this connection:

1. Automatic or mechanical devices which replace direct handling of chemicals will reduce the employee's exposure to irritating substances.
2. Installing of proper exhaust systems over processes where irritant vapors, fumes or dusts are given off.

(Continued on page 38)

They're more precious to industry than all the china in the universe. But like china, workers' hands are readily vulnerable to damage. Skin-injuring industrial operations and chemical irritants in your plant see to *that!*

While you can't always avoid exposure to these dangers, you *can* help safeguard skin against the ailments caused by them. Simply have your workers gently rub the proper West Protective Cream on their skin before they start work. Thus, they are assured of *safe, smooth, lasting protection.*

Since they are scientifically prepared, industry everywhere finds West Protective Creams effective precautions against nearly every dermatitis hazard that comes to mind. These creams come in six different types—and either penetrate the skin or remain on the surface—according to the special type of protection required.

To keep your workers safer on the job—and production efficiency up—consult one of almost 500 trained West Representatives from coast-to-coast. He's fully qualified to explain the advantages of these highly effective West Protective Creams.

Send for Free Chart

PRODUCTS THAT PROMOTE SANITATION

WEST DISINFECTING Company

42-16 West Street, Long Island City 1, N. Y.

CUSTOM-BUILT SAW GUARDS

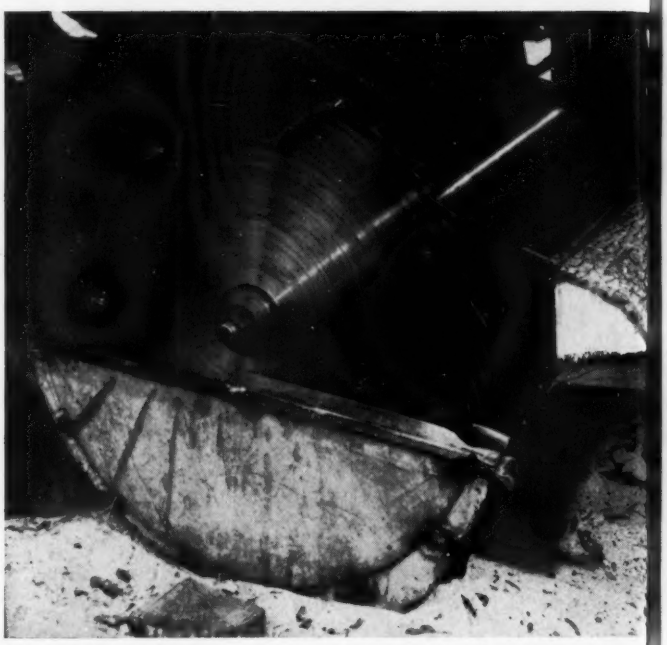
THE NUMBER of accidents in the Joseph E. Seagram & Sons' southern stave mills reached such a peak a few months ago that the problem of safety guards for all saws was tackled with vigor by the company's Safety department.

It was decided that guards to shield the saw operator from the vicious moving saw teeth would have to be custom-built. Since there had been very little research on the problem the whole idea needed experimentation.

Mr. W. Grant, a former Louisville plant production operator with an engineering degree, was selected by Seagram to handle the project, and he worked for one month in one of the company's stave mills in Sparta, Tenn., learning how to make saw guards. After this month of study and experimentation, Mr. Grant set out to visit each of the large Seagram mills and to custom-build guards for their saws.

Tools and materials traveled along with Grant in a panel truck. Working with the maintenance men at each plant, he constructed guards such as those pictured on this page.

Mr. Grant completed the job in early September, after having visited the fifteen large mills. The small mills not included in the tour have been sent the parts of the various guards needed with complete directions for their installation. The experiment, even in its month-old stages, shows encouraging results. The October issue of Proof magazine states that the alarming toll of accidents is showing a sharp decline on the Safety department records.



The picture above shows a guarded equalizing saw. This saw is used at Seagram's stave mills to cut stave bolts to a uniform size.

This picture shows the guarded heading saw which cuts the heading bolt into heading pieces. The two metal guards on these saws are designed to prevent injury should a nearby worker stumble and fall into the whirling blade.

A well-guarded rip, or edging, saw —the most dangerous of them all. Its function is to cut bark and sap wood of the stave pieces. This is such a rapid operation that it has been the cause of more accidents than any other saw used by the Seagram Company. The transparent plastic saw cover allows the operator to watch how much he is cutting off, yet keep his fingers from coming too close to the blade.

New Plastic Lens Goggles that Workers Will *Wear*

Increased Surface Hardness for Greater Scratch Resistance

Safety Directors, please note.

Made from a brand new allyl casting resin, Safe-T-vis is a plastic protective lens so lightweight, so comfortable that workers will wear them throughout the period of exposure for complete 8-hour protection.

Tests prove Safe-T-vis qualifications as a safety lens. Standard drop-ball tests show Safe-T-vis provides greater resistance to impact than does case-hardened glass. Tests involving other chief causes of industrial eye injury (flying objects, small particles, corrosive substances and splashing metals) convincingly establish Safe-T-vis' superiority. *Further, increased surface hardness makes frequent replacement unnecessary.*

Safe-T-vis lenses, in actual use, have demonstrated that the known advantages of plastic lenses may now be utilized to the full extent and have shown that Safe-T-vis, point by point, is the finest eye protection available.

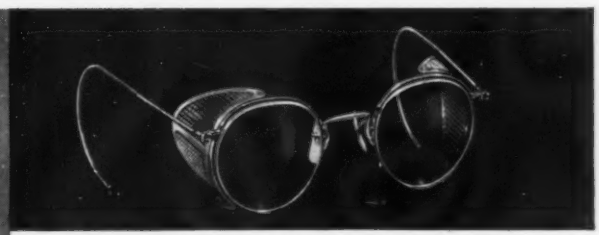
Safe-T-vis

8-hour Protection
8-hour Comfort

Lightweight protective spectacles

A product of THE UNIVIS LENS COMPANY, Dayton 1, Ohio

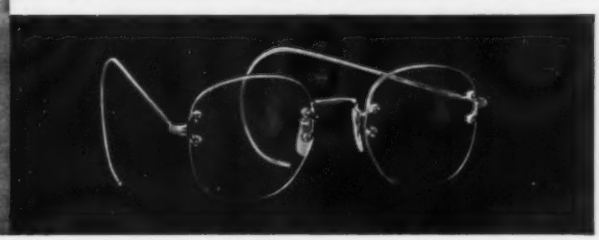
F-100. Spectacle type goggle with full frame. Available in 47 mm. and 44 mm. P-3 shapes.
BRIDGE SIZES: 18 mm., 20 mm., 22 mm., and 24 mm.
TEMPLE LENGTHS: 6 inches, 6½ inches, and 7 inches.



FS-100. Spectacle type goggle with side shields.
BRIDGE SIZES: 18 mm., 20 mm., 22 mm., and 24 mm.
TEMPLE LENGTHS: 6 inches, 6½ inches, and 7 inches.

F-110. Spectacle type goggle with double bridge.
BRIDGE SIZES: 18 mm., 20 mm., 22 mm., and 24 mm.
TEMPLE LENGTHS: 6 inches, 6½ inches, and 7 inches.

R-100. Spectacle type goggle with heavy duty rimless mountings. Recommended for exposure to *light* hazard. Available in 48 by 44 mm. R-4 and in 45 by 41 mm. R-4.
BRIDGE SIZES: 18 mm., 20 mm., 22 mm., and 24 mm.
TEMPLE LENGTHS: 6 inches, 6½ inches, and 7 inches.



INDUSTRY News

SAFETY CONFERENCE . . . The 1948 Michigan Safety Conference, to be held May 17-20, will be the largest in history, attracting more than 5000 persons working actively in all phases of safety, according to George B. Abbott, conference president.

Sponsors of the conference are the Michigan State Safety Commission, Michigan Department of Labor and Industry, Detroit Industrial Safety Council, Lansing Safety Council, Traffic Safety Association of Detroit, Greater Grand Rapids Safety Council and Kalamazoo Safety Council.

Scores of safety exhibits will be on display at the Book-Cadillac Hotel during the four day conference. The week of May 17-23 will be proclaimed "Michigan Safety Week" by Governor Kim Sigler.

APPOINTMENT . . . F. R. Davis, president of Davis Emergency Equipment Co., has announced the appointment of Mr. J. S. Allan as Manager of the Safety Equipment Division of the company, replacing Mr. M. S. Rundel who will represent Davis in connection with the Instrument Division.

CAMPAIGN TO PREVENT WASTE . . . Leprechauns, gremlins, elves, and sprites turned a fire drill into a near-riot at the W. J. Voit Rubber Corporation in Los Angeles recently.

At the clang of the alarm 500 employees marched out of the plant in orderly fashion. Six minutes later the bell clanged again and they all marched back in.

Then pandemonium broke loose.

From every crypt, corner, and cranny of the building tumbled a profusion of pennies. They turned up in the molds, machinery, assembly lines, chutes, packing cases, scales, desks, papers, and in every obscure and surprising place in the large three-story Voit factory.

No explanation for the phenomenon was offered to its employees by the company, but a spokesman "confided" to reporters that the penny hunt was the beginning of a campaign to prevent waste. "We are going to demonstrate," said Page Parker, Vice President in charge of production, "that a couple of million pennies can be saved each year by each worker's more effective use of his time and materials. Most of the thousands of dollars we can save are lying right under our noses."

NEW SAFETY DIRECTOR . . . Initial steps in a new comprehensive plant safety program were announced by the Blatz Brewing Co., with the appointment of Gregg R. Meyers as the company's safety director.

Meyers, a native of Milwaukee, has been a safety engineer at the Kearney and Trecker Corp. for the past six years. In his new post he will expand Blatz plant and office

Mr. Meyers

safety work previously handled by the company's personnel department. He will be the first full time safety director in the 97-year history of the Blatz company.

Blatz President Frank C. Vervest said that under the extended safety program Meyers would be in direct charge of plant safety, instruction of foremen, fire and accident prevention and control, plant evacuation and plant protection.

FLOW DIRECTORY . . . The new Flow Directory of material handling equipment, machinery and accessories, published by the Bolivar Publishing Company, contains much information that can be of value to the safety engineer. Profusely illustrated, its 402 pages includes

technical data on safe handling of loads, strengths of various materials, allowable stresses of structural timber columns, recommended live loads for storage warehouses, safe carrying capacities of rubber covered portable cables, load ratings for fork lift trucks and other data which the safety engineer can use to advantage.

NEW JOB . . . Edward G. Padgett has resigned as director of safety for the North Carolina Industrial commission to join the safety engineering department of Employers Mutual Liability Insurance Company of Wausau, Wisconsin. He will have his headquarters in the Charlotte office of the company.

Director of safety for the commission from 1929 to 1935 and from 1941 to the time of his resignation, Padgett is credited with planning the first state-wide industrial safety conference held in the South, at High Point, N. C., in 1930. He directed organization of the first regional safety conferences in that state and helped organize three of four industrial accident prevention contests sponsored by the commission.

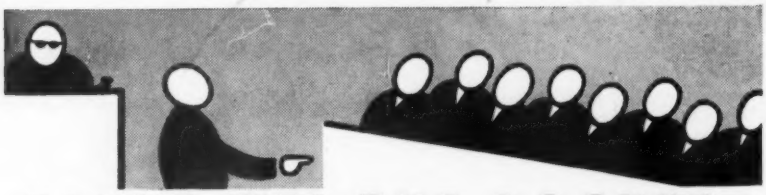
SAFETY FOR FACTORY WORKERS
SAFETY FOR CONSTRUCTION MEN
SAFETY FOR CHEMICAL WORKERS
SAFETY FOR WORKERS IN ALL INDUSTRIES

represented in CESCO products

20 out of about 200 Cesco Products are shown above. They represent what CESCO can do to protect your workers, no matter what your needs may be. For quality safety equipment, check CESCO every time.

CHICAGO EYE SHIELD COMPANY
2308 Warren Boulevard • Chicago 12, Illinois

CESCO **CESCO FOR SAFETY**



RIGHT OFF THE DOCKET

The trend of litigation on workmen's health and accident compensation is reflected in these briefs on the latest and most representative cases coming to trial in the intervals between issues. Familiarity with this trend is important to every industrialist. Clip cases and file for future reference.

Assisting Third Person Without Consent of Employer

RIDLER was employed by the Sears, Roebuck & Company, as a clerk or salesman in its farm store at Rochester. Ray Lind was division manager of this store and in charge of employee. This store handled merchandise suitable for farm trade, including refrigerated coolers.

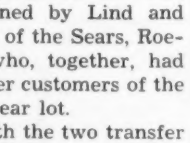
Two doors away and served by the same alley, was another building, the front portion of which was occupied by the Sears, Roebuck Company for storage purposes. The rear portion thereof was occupied by a partnership comprised of Lind and Clyde Swim, an employee of the Sears, Roebuck Company, engaged in selling merchandise not handled by the company. All this with the knowledge of the Sears, Roebuck Company. One of the items handled by the partnership was a deep freeze unit, similar in form, size and appearance to the cooler handled by the Sears, Roebuck Company.

On the opposite side of the alley was a parking lot maintained by the Sears, Roebuck Company, where its customers might load their autos or trucks with merchandise purchased by them at the store. By the terms of his employment, Ridler was subject to the authority and direction of Lind, the company's store manager. As a part of his duties, in addition to selling merchandise, he was required to assist customers in loading their purchases onto their cars on the rear parking lot and to help unload merchandise delivered to the store when it was too heavy for the regular transfer employees to handle.

Shortly before the accident, Lind and Swim had exhibited one of their deep freeze units, weighing from 400 to 700 pounds, at the county fairgrounds. On August 14, 1945, the day of the accident, they had employed a transfer firm to return the unit to the partnership premises. The unit was returned about 2:00 P. M. that day. Two employees of the transfer company were then on its truck.

Ridler was then just returning from the parking lot, where he had assisted a customer of the Sears, Roebuck Company in loading merchandise. As he crossed the alley, an employee of the transfer company addressed him, saying, "could you give us a lift—get this off—too heavy for two of us." Ridler then proceeded to help unload the unit. He was later joined by Lind and another employee of the Sears, Roebuck Company who, together, had been assisting other customers of the company on the rear lot.

These three, with the two transfer company employees, removed the heavy unit from the truck. In setting it down, the men carrying it, except Ridler, suddenly released it in such a way that the unit fell on the latter's hand, crushing his finger, severing a tendon therein, and resulting in an 80% loss of use of his right ring finger, for which the Industrial Commission allowed the recovery here protested.



The employee's action was brought against the company, the transfer company and its insurer, and the partnership. The Sears, Roebuck Company was held liable for the injury to Ridler, giving rise to this action. Sears, Roebuck Company complains that the accident did not occur in connection with the employees work and while in the course of employment or any thing incidental thereto, but on the contrary, occurred while he was actually engaged in the interests of either (1) the transfer company, a stranger to his employer, or (2) the independent private interests of Lind, his superior employee.

It was concluded that where the employee, without express or implied instructions from his employer, or anyone representing the latter, voluntarily left his employment to perform services exclusively for the benefit of a third party, he removed himself for the time being from the protection of the compensation act, and that injury he sustained in performing such voluntary services for another did not arise out of, nor was it incidental to, the services or employment for which he was engaged by his employer. Sears, Roebuck Company did not through any of its authorized employees instruct Ridler to assist in the unloading of the deep freeze unit and where Ridler simply at the request of the transfer men assisted in unloading property which did not belong to the Sears, Roebuck Company, but to the partnership, claim was not compensable as arising out of and in the course of employment nor as incidental thereto.

Claim disallowed.

Ridler vs. Sears, Roebuck & Co. et al, Supreme Ct. of Minn., June 27, 1947

28 Northwestern Reporter, Second Series, Page 859.

Defective Safety Device Contributes To Fatality

HOLLEY together with an employee named Daugherty worked together as skip loaders at the bottom of a shaft operated by the company. It was engaged in mining lead. Their working hours were from 10 A. M. to 6:30 P. M. As a matter of practice, both men would come to the surface by means of a cage and hoist, and at approximately 3:20 each day they would come to the surface and wait until all the day shift had left the mine and shortly thereafter would return to the mine and resume their work.

On September 21, 1944, while this change in shifts was in progress, a number of men engaged in a friendly water fight. The men had on previous occasions engaged in such conduct, although it was forbidden.

It appeared that at the time immediately before the accident Holley poured some water in the hip pocket of another employee named Watkins.

who immediately procured a can of water, at which time Holley proceeded to run toward the shaft followed by Watkins. Holley opened the gate of the shaft and gave a signal to the engineer by pulling twice on an electric device, which was the customary signal if one wished to go down. The shaft gate was equipped with an electric safety device which controlled a red light in the engineer's station. Holley, after he stepped on the cage, slammed the gate shut, but it bounced back and did not close. He attempted to close the gate, but the cage was already on the way down. His head and body came in contact with the edge of the

shaft causing him to fall backwards off the cage into the mine. There was no gate on the cage itself. At the time the accident occurred, it was conceded that Holley was to return to work, and in doing so it was necessary for him to enter the cage and give the signal to go down as indicated above.

It was conceded that the spring which should have kept the door closed was too weak to perform its function, therefore, it was necessary for Holley or anyone else in his position wishing to go down to reach over and close the gate, so as to extinguish the red light, which was equipped upon the shaft gate as a safety device. To reach over and close the gate after the engineer had received the signal to lower the cage, placed such a person in danger of coming in contact with the edge of the shaft.

The principal question for consideration is whether at the time of the accident, the claimant was in he course of this employment. The company contends that at the time of the accident, claimant was engaged in horseplay and, therefore, was not entitled to a recovery.

The court, however, concluded that the facts warranted a recovery on the theory that at the time of the accident, the claimant was engaged in his regular course of employment; that although he had prior thereto engaged in horseplay and perhaps he had violated a rule which required, that in order to descend down the shaft, both Holley and Daugherty were supposed to go together, these facts may have been a contributing cause of Holley's death. Holley was presumed to be where he was required to be, going to work by the usual route, by means of a conveyance operated and controlled by the company and that by reason of a defect in the signal device, he was injured and subsequently died; that such defect was the material and contributing cause of the injury.

Claim allowed.

Holley vs. St. Joseph Lead Company, Supreme Ct. of Mo., April 21, 1947 201 Southwestern Reporter, Second Series, Page 941

Special Mission As Per Instructions Of Employer

BOND was employed as a roustabout. He was instructed that whenever he would be unable to work that he was to inform in advance his immediate superior and boss, Bradshaw.

On the date of the accident, and while at home, Bond became ill and didn't feel like working. He instructed his wife that he was gonig to see Bradshaw and advise him to

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Look for the cord, rubber and straight ridges, exclusive with SAFE-HI Ladder shoes. Also self-sharpening spikes, made with tool steel core . . . no inspection or sharpening . . . never a hazard from dull spikes. Many other exclusive features, too.

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this effect. This custom was followed by members of the drilling crew as it was impossible to continue work without a full crew.

After Bond had informed Bradshaw of his condition and while on his return home therefrom, he was killed by the collision of his car which he was driving on a public street with an automobile of another person who was in no manner connected with Bond's employer. The place where Bond was fatally injured was on a direct route between Bond and Bradshaw's homes.

Company contended that recovery should be denied by reason of the fact that the accident did not occur while in the scope of claimant's employment. The record indicates that Bond worked on an hourly basis and that there was no required duty to perform while off the premises. Bond was not furnished transportation between his home and the place of employment, and at the time of his death which occurred between the hours of 6:30 and 7:00 P.M., he was off duty.

In addition thereto, the collision occurred between his own car and that of a stranger on a public street, a hazard to which the public was subject. The company contended further that Bond's trip to Bradshaw informing him that he would not work the next day was not the performance of such a special duty or mission for his employer as to make Bond's trip for said purpose an act within the scope of his employment, which consisted in the drilling of an oil well 50 miles away. Further if it was construed that Bond was on a special mission, that said mission had been completed when Bond was killed as he had already notified the driller that he would not work and was returning from the driller's home to his home when killed and further that Bond "was fired" while at Bradshaw's home and the employment then ended.

The claim was allowed by the Court on the theory that Bond had left his home on a special mission for his employer; that he was complying with the company's instructions and that his return home at the time he was killed was part of the special mission as long as he did not deviate from the purpose of his mission and engage in an enterprise of his own.

The record indicates that he took the same route back as he took leaving his home. Bond was construed to be at the place he was injured and subjected to the dangers of the street *because of instructions of his superior to report to him when he could not work and that such was for the purpose of his employment.* Neither Bond nor Bradshaw had a telephone. They lived more than 3 miles apart. The instruction to report under the circumstances required Bond to drive his automobile to Bradshaw's home and to return over the streets of Merkel where he was killed.

The accident occurred, therefore, during the course of claimant's employment and he was, therefore, entitled to recovery.

Hartford Accident & Indemnity Company vs. Bond, et al
199 Southwestern Reporter, Second Series, Page 293
Ct. of Civil Appeals, Texas June 10, 1947.

Here's the Handy DAYTON "ROLL-ALONG" SAFETY LADDER

IDEAL FOR THE STOCK ROOM

. . . The Dayton Roll-Along Safety Ladder with its rubber tired swivel casters can be speedily moved in any direction with practically no effort.

Safety shoes with renewable treads hold ladder permanently and safely in place while ladder is occupied.

Constructed of tested airplane spruce throughout and reinforced with steel braces for additional safety. Folds compactly for convenient storing. Available in sizes 3-ft., 4½-ft. and 6-ft.

Elevating auxiliary platform which folds back in main platform adds height if desired. These ladders are being used in many of America's largest plants. See for yourself! Write today for bulletin.

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..... FIRE EXTINGUISHERS	..... RESPIRATORS AND PARTS	..... "PLY"
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Specific Safety Requirement Violated

MANDAMUS proceedings were filed on behalf of the Howard Engineering and Manufacturing Company against the Industrial Commission of Ohio to compel the Commission to deny the application of Leo Charles List, employee, for an additional award, in which the employee contended that by reason of the company's failure to comply with Section 45 "C" of the Industrial Commission's order contained in Bulletin 207, the Code of Specific Safety Requirements relating to the operation and maintenance of presses, hammers, machines and machine tools used in manufacturing, finishing or fabricating products out of metal, tile, fiber, wood, leather or other material and all operations in connection therewith.

Company contended that the writ should be allowed: (1) because of Section above quoted does not constitute a specific safety requirement within the meaning of Section 35, Article 2 of the Constitution of the State of Ohio; and (2) that in the event the section is declared to quote a specific safety requirement, then the company comes within the exception as stated in the third sentence of Section 35, "C".

The section above referred to provides as follows: Squaring sheers, where hand fed shall have the knives substantially guarded. Where the opening for receiving the material is to be sheared is more than one-half inch this space shall not exceed twice the maximum thickness for which the machine is designed. This provision shall not apply where the material sheared is more than 18 inches in width.

The term quoted has been designed, unless otherwise specifically stated, to mean that the object is provided with "guards" as specified in the section or in accordance with the Ohio General Safety Standards Code.

The term "substantial" is held to mean construction of such strength, of such material and of such workmanship that the object referred to shall under normal or reasonably foreseen circumstances, withstand all reasonably expected shock, wear, usage and deterioration for which the object was designed.

The act seems to be sufficiently clear to have warned the employer of the safety requirements demanded and, therefore, the Commission's order is held to constitute a specific safety requirement.

The record indicates that the employee was engaged in cutting up a piece of sheet steel that was 8' long and 30" wide x 16" long. This fact is not in dispute.

Commission contended, however, that the language "material sheared is more than 18" in width" meant the size of the piece after it had been cut.

The Court concluded that the Specific Safety Requirement created within the purview of Section 35, Article 2 of the Constitution of the State of Ohio, provided a reasonable requirement and that the award did not constitute an abuse of discretion. The writ of mandamus was denied. State ex rel, Howard Engineering and Manufacturing Company vs. Industrial Commission, Supreme Court of Ohio, June 25, 1947, 74 North Eastern Reporter, Second Series, Page 201

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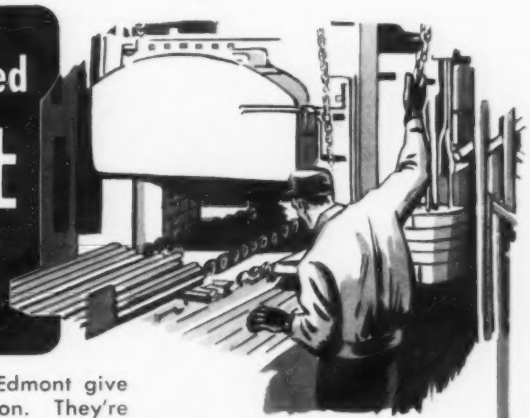

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LOOK FOR THE RED BAND

REDMONT gloves by Edmont give proven hand protection. They're made of strong, high tensile fabric, heavily coated with tough, durable Neoprene. Tests prove up to 50% more wear with REDMONTS. Features include new thumb-span pattern for free hand action . . . curved fingers for added comfort and better grip . . . unusual flexibility. Cuff may be turned to prevent liquid running down when hands are raised.

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REDMONTS high resistance to oil, grease, harmful liquids and rough, sharp materials provides greater protection with comfort and economy.

Fabric Lined RUBBER GLOVES

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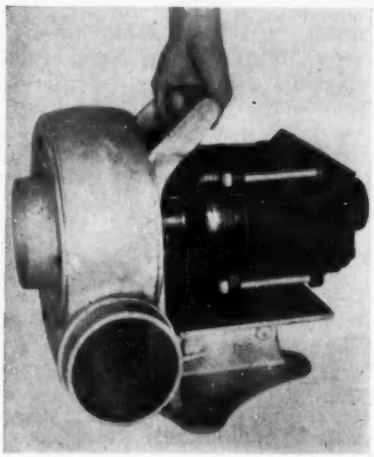
NEW PRODUCTS

NP-1 . . . FACE SHIELD. American Optical Company announces a new plastic face shield specially designed to be worn in combination with the company's R-1000 and R-2000 respirators.

Light in weight, durable and easy to attach to the respirators, this shield is said to protect the eyes and major part of the face against the impact of foreign particles striking from the front. Adding to durability, outer edges of the shield are protected by a vinyl plastic binding.

The shield, which may be worn over regular prescription glasses, will be invaluable for respirator wearers who need lightweight, comfortable eye and face protection, the optical company states.

NP-2 . . . PORTABLE VENTILATOR. The United Electric Motor Company announce the development of "SAF-T-AIR," a small but powerful *portable* safety ventilator. The unit was designed to save lives and improve worker efficiency by providing fresh air to men working in confined places. The new electric motor-driven ventilator has a capacity of 425 cubic feet per minute yet weighs only 50 pounds. One man can easily



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Scrubs and polishes faster. Easy to operate. Exceptionally quiet. Sturdy, perfectly balanced construction.

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carry it by a balanced handle which has been placed over the center of gravity so that the unit can not tip over when carried or hung. It can be used either as a blower or exhauster and because of its compact size will pass through small hatchways and hard to get to places.

NP-3 . . . MAGNETIC SEPARATORS. A new line of permanent magnetic separators known as PERMA-PLATE Magnets to remove tramp iron from materials traveling down chutes or through ducts has been developed by Dings Magnetic Separator Company. The magnets are intended for protection of grinders, crushers, stokers, pulverizers and other machinery susceptible to damage by iron and for purification of such materials as food, feed, grain, coal, fertilizer, rubber, textiles, ceramics, plastics, etc. Installation is made by cutting away a section of the bottom of the chute and installing the magnet in place. The magnet is mounted on hinges so that it can be swung away for removal of collected iron.

NP-4 . . . FIRE EXTINGUISHER. The new 10 pound dry chemical fire extinguisher manufactured by the All-Out Manufacturing Company is designed to combine high efficiency

under most conditions with maximum protection to the user and to equipment installations. ALL-OUT performs effectively under all climatic conditions. The chemical is ejected, under pressure, in a flat stream that separates the flame from the burning material, instantly forming a dense, fire-smothering cloud over a flaming area up to a distance of 18 feet. The unit is approved by Associated Factory Mutual Laboratories and Fire Underwriters Laboratories.

NP-5 . . . PENETRANT. UNOX penetrant, a chemical specially developed for fire-fighting, is now available from Carbide and Carbon Chemicals Corp. When one part of this new penetrant is added to 100 parts of water, the extinguishing efficiency of water is increased 3 to 5 times. Contrary to most chemicals used for fire-fighting, this compound itself does not act on the fire but changes the characteristics of the water used to fight the fire. Water that has been so treated has less tendency to run off the surface of a burning material. Instead the water penetrates, allowing a more

Liquid-proof canvas gloves that protect hands from costly injuries in corrosive materials. Impregnated with tough milled-type black DuPont neoprene, oil and acid resistant, won't peel, durable under abrasive wear, extra sure grip for easier work speed. Comfort-fit size, gauntlet (A-23) or knit wrist (G-25). Buy from your supplier — or write for all the facts.

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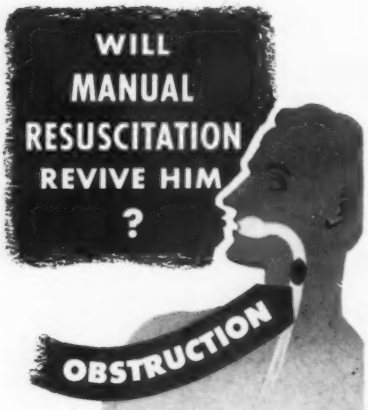

Manual resuscitation, adequate for some uncomplicated respiratory emergencies, is frequently *not* adequate when suffocation, drowning, or crushing is accompanied by throat obstructions, burns, or internal injuries.

The saving of just one worker's life, in one of these cases, is worth many times the money invested in adequate equipment. When an E & J machine is immediately available in your plant, your workers are protected—*as completely as humanly possible*—against death or complications arising from respiratory emergencies.

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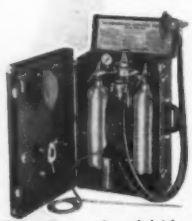
See for yourself the simplified, easy-to-learn operation of an E & J resuscitator-aspirator-inhalator . . . examine the skilled workmanship, the many safeguards provided your employees. For a demonstration, without obligation, clip and mail the coupon right now, or phone your nearest E & J office.



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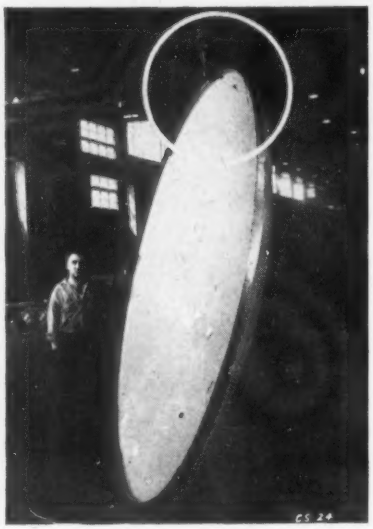
effective absorption of the heat from the fire.

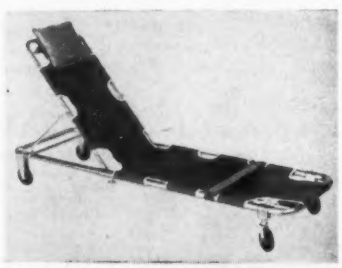
NP-6 . . . GRIP CLAMP. A very simple, rapid and absolutely safe method of raising or lifting into place such items as large tanks, flanged heads, and similar articles



which are usually difficult to get securely attached, can be accomplished with the new Merril-Voltz Positive Grip Clamp according to a news release from Merril Brothers.

The device is said to be able to lift anything that has sufficient flat surface for its jaws to grip. Once the clamp gets a hold, additional pull or weight merely tightens its grip to the object. Made in the following sizes: ½ ton, 1 ton, 3 ton and 6 ton.

NP-7 . . . VERSATILE LITTER. A new type litter, known as Collapsi-Cot, has been recently announced by the Emergency Aids



Company. According to the manufacturer, this new development embodies many new features that permits patients to be handled with

IT'S INTEGRATED!

Scrubber and soap welded to form a single, integrated, indivisible unit . . . each particle a complete cleanser in itself.

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INTEGRATED SOAP
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As makers of fine quality soaps for over forty years, we present this exclusive Lightfoot process as a major advance in cleansing safety, efficiency and economy.

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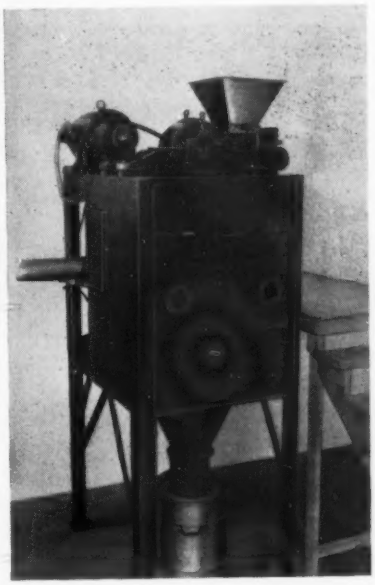
greater ease, safety and comfort. Multi-purpose, it can be quickly converted for use as a flat stretcher, transfer chair, convalescent lounge, and other emergency uses. The unit sets up in a few seconds. No gadgets or clamps to fumble with. Wheels snap and automatically lock into upright position by merely pressing a button. Ruggedly constructed of cold drawn seamless steel tubing, nickel and chrome-plated finish.

NP-8 . . . DUST COLLECTOR The Pulverizing Machinery Company have announced their newest product, MIKRO * COLLECTOR. Hitherto the company has confined itself to the manufacture of pulver-



izing machinery for the process industries. The new member of the MIKRO family is described in the announcement as the embodiment of brand new principles, destined to "revolutionize" the art of dust collection.

NP-9 . . . FIRST AID KITS. Three special first aid kits, for emergency treatments of burns, have been developed by the Medical Supply Company. The kits provide special protection anywhere people work with heat or with inflammable materials.

Each kit is packed with an assortment of specially selected first aid units. These include bandages, an-

THE NEW . . .

SAF·CO·METER

CARBON MONOXIDE INDICATOR

USES DETECTOR TUBES DEVELOPED BY NATIONAL BUREAU OF STANDARDS

The principals incorporated in this unit were developed during the war by the National Bureau of Standards. Former methods of determining CO were expensive and complicated. Now for the first time, the SAF-CO-METER offers a fast, simple, inexpensive method of testing air for CO content. Complete unit fits in small case which can be carried in coat pocket. The instrument is extremely sensitive, dependable and easy to use.

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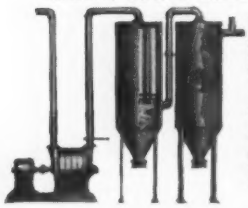

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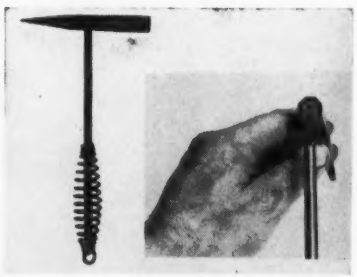
NP-10 . . . CHIPPING HAMMER. A new improvement in the construction of their line of chipping hammers is announced by Atlas Welding Accessories Company. Atlas hand forged heads are now drilled half way through and the handles silver brazed into the hole. The process, which is the same as used by cutting tool manufacturers in attaching carbide tips to cutting tools, is the most efficient and permanent process known. The end of the handle is machined to fit the vase of the



drilled hole so that the silver flows, cementing the handle to the head, over the entire surface of the hole. The atlas all-metal design, incorporating the metal handle, makes this new, stronger, smoother construction possible.

NP-11 . . . EYEGLASS FRAME. A new rivetless, screwless spectacle lens mounting has been announced by Bauch & Lomb Optical Company. Employing a radically different structural principle, the semi-rimless mounting holds lenses in place by tension alone. The tension mount, known as BALGRIP, clamps lenses firmly in finger-like brackets, eliminating the necessity of drilling holes in lenses or using rivets or screws in their mounting. The new mounting is said to bring three new benefits to eyeglass wearers: More attractive appearance, wider field of vision due to elimination of screws, and greater safety to lenses.

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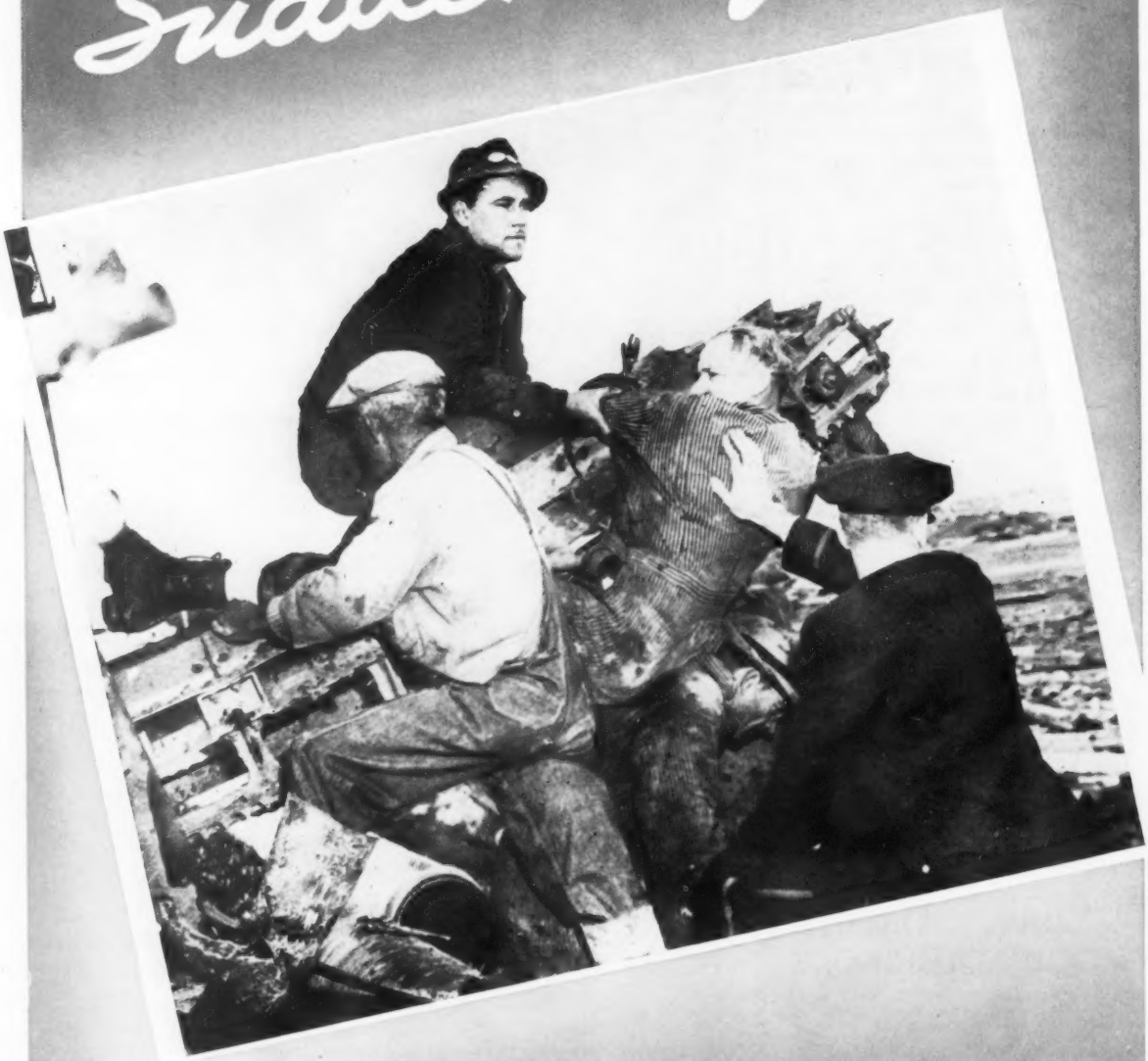
. . . And Sudden Injury

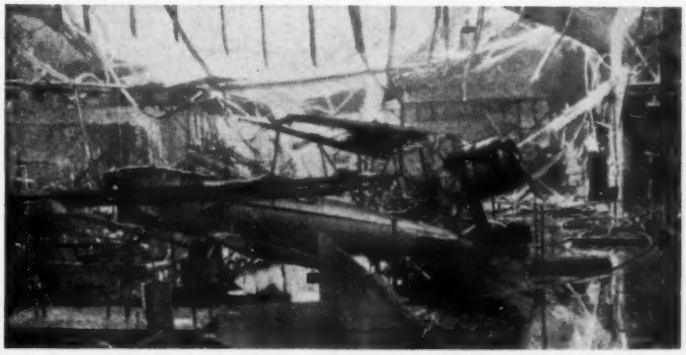


His right arm smashed in the teeth of a conveyor belt on a trench digging machine, this man was supported in the position shown for an hour and a half before being released. He lost his arm. (Photo: INP)

THE business end of a ditch digging machine is something to stay clear of while it is in operation. The only occasion on which a worker would be tempted to reach into or around the digging rotary or beam would be if an obstacle should become lodged in the belt mechanism. Should this be the case, the operator should immediately *stop the machine* before permitting anyone to reach into the danger zone.

The operator is always facing the business end of the digger while it is in operation. He is able to shut off the power at a moment's notice if he is on the job. Unlike an automobile, once the machinery is stopped on a ditch digging machine there is no momentum or coast factor to reckon with. Once the power is cut, the rotary or digging beam stops operating immediately. If the operator is on the job, no one is going to get seriously hurt. It is gross carelessness to permit anyone to become hopelessly entangled in the jaws or teeth of the conveyor belt on a digging machine, and though it is quite possible a worker might accidentally fall against the rotary or beam, the alert operator will immediately shut off the power before serious harm is done.

Though it would seem ridiculous to assume that workers would attempt to oil conveyor belts while they are in operation, reports of serious injuries prove that workers do exactly that. Only recently a worker lost his life in Pittsburgh attempting to oil a conveyor on a coal-loading dock. Before any attempt is made to oil any type of machinery, that machinery should first be shut down. We mention this, because it applies also to ditch digging machines as well. It is a terrible sight to see someone hanging from the teeth of a conveyor belt. Here again, it is caution and common sense that plays the important role in accident prevention.



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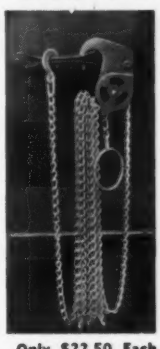

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PREVENTO

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WESTPORT, CONNECTICUT

SKIN DISEASES IN INDUSTRY
from page 20

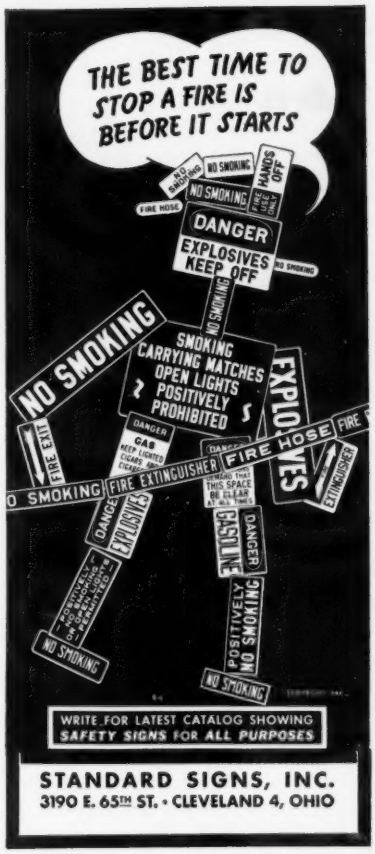
3. A good housekeeping program will ensure high standards of plant cleanliness.
4. Personal cleanliness is most important, and is encouraged by adequate washing facilities.
5. All workers exposed to skin hazards should be watched carefully by the foreman and at first sign of skin disorder, they should be removed from the exposure.
6. Personal protective equipment should be worn and cleaned daily. When gloves cannot be worn because of machinery hazards, protective ointments may be applied directly to the skin.
7. Employees should use safe methods in handling hazardous substances.

Precautions Employees Should Remember

1. The skin should be kept as clean as possible. Use a mild soap as cleanser and plenty of hot water. Hands, forearms and face should be washed thoroughly at noon and at the end of the work day.
   Solvents such as gasoline and turpentine, strong alkalis and abrasives, should never be used for cleaning the skin.
2. Avoid unnecessary contact with irritating substances and solvents which remove the natural oil of the skin.
3. Report any sign of skin disorder promptly to your immediate supervisor and to the plant first-aid or medical department. Avoid self-treatment.
4. Obtain immediate first-aid treatment for any cut or break in the skin, no matter how slight.
5. Wear gloves, aprons and other protective equipment, and clean them daily. Remove contaminated gloves, etc. immediately. When protective ointments are supplied, apply them as instructed.
6. Change into work clothes at the plant, and have them cleaned frequently.

Conclusion

A clean, intact, normal skin is the best defence against skin irritants. Protective equipment—personal and mechanical — safe working habits, cleanliness and good housekeeping are all methods to keep the skin intact and normal.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FIRE PROTECTION FOR INDUSTRY

A SECTION IN WHICH ARE PRESENTED THE VARIED SPECIALIZED PROBLEMS AND SOLUTIONS TO FIRE FIGHTING CONTROL AND PROTECTION IN INDUSTRY

Table of Common Fire Hazardous Chemicals—Part 6 40

Spray-Booth Sprinklers 41

Magnetic Separators—Aid to Fire Prevention 42

Meet the Chief 46

Table of Common Fire Hazardous Chemicals

Part VI

From a table Prepared by Committees of the National Fire Protection Association and American Chemical Society.

Tentatively adopted 1928, *adopted* 1929, *amended* 1931, 1935, 1938, 1939, 1941, 1942 and 1944.

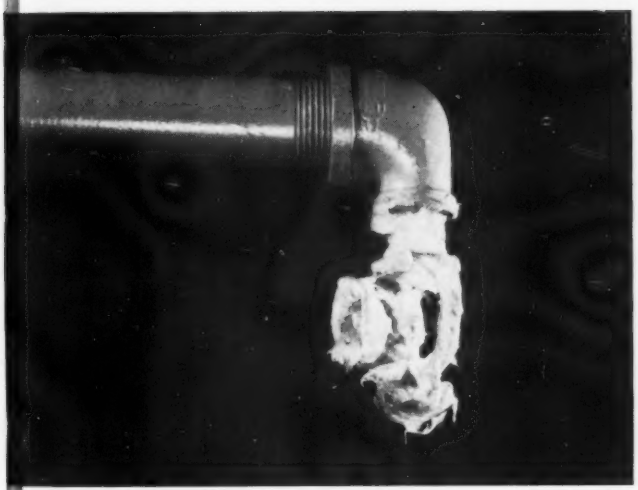
NOTE. These columns are informative only; it is not considered necessary that the material be kept or stored only in the containers as listed, nor that each package be labeled. The requirements in the table on the storage of containers refer to chemicals in usual containers, and are not intended to apply to small bottles of chemicals such as are found in drug stores and chemical laboratories.

Name	Usual Shipping Container	Fire Hazard	Storage	Fire Fighting Phases
Magnesium Nitrate	Wooden boxes.	Oxidizing material. Classes with sodium nitrate.	See sodium nitrate.	See sodium nitrate.
Muriatic Acid—	See hydrochloric acid.			
Naphthalene	Tins, barrels and burlap bags.	Gives off flammable vapors when heated. Flash point 176° F. Naphthalene dust forms explosive mixtures with air. Ignition temperature 559° C (1038° F).	Isolate; keep away from fire or heat.	Water is the best extinguishing agent.
Nickel Nitrate	Wooden kegs.	Oxidizing material. Classes with sodium nitrate.	Safeguard against mechanical injury.	
Nitric Acid	Carboys and glass bottles.	May cause ignition when in contact with combustible materials; corrodes iron or steel; may cause explosion when in contact with hydrogen sulphide and certain other chemicals.	Safeguard against mechanical injury of containers; isolate from turpentine, combustible materials, carbides, metallic powders, fulminates, picrates or chlorates.	
Nitraniline or Nitro Aniline	Wooden kegs.	In presence of moisture causes nitration of organic materials and may result in spontaneous ignition.	Store in dry place; safeguard against mechanical injury.	
Nitrochloro-Benzine	Wooden kegs.	Gives off flammable vapors, when heated, which may form explosive mixtures with air.	Isolate, preferably in the open; if inside should be in unheated compartment or building.	
Phenol		When heated yields flammable vapors. Flash point 172.4° F.	Soluble in water. Never store with or above food products.	
Phosphorus, Red	Hermetically sealed tin cans inside of wooden boxes.	Flammable. Explosive when mixed with oxidizing materials.	Isolate from other chemicals; safeguard against mechanical injury of container.	Flood with water, and when fire is extinguished cover with wet sand or dirt. Under certain conditions at high temperatures reverts to white phosphorous.
Phosphorus, White, (or Yellow)	Under water usually in hermetically sealed cans enclosed in other hermetically sealed cans with outside wooden boxes, or in drums or tank cars.	Highly flammable. Explosive in contact with oxidizing material. Ignites spontaneously on contact with air.	Isolate from chemicals. Store large quantities in underground iron or concrete tanks.	Deluge with water until fire is extinguished and phosphorous solidified; then cover with wet sand or dirt.
Phosphorus Pentasulphide	Glass bottles and sealed drums.	Slow-burning. Readily ignited by small flames. Ignition temperature about 287° C. (5486° F.). Danger of spontaneous heating in presence of moisture.	Store in sealed containers away from oxidizing materials.	Carbon dioxide is an effective extinguishing agent. Water is also effective but reacts with unburned material, forming hydrogen sulphide.
Phosphorus Sesquisulphide	Wooden boxes, iron drums, glass bottles.	Highly flammable. Ignites by friction.	Isolate from chemicals. Safeguard container against shock.	
Picric Acid	Wooden kegs, boxes, bottles.	Flammable, explosive. Oxidizing material.	Isolate or store under water, keep away from other material, including metals, with which it forms sensitive and explosive picrates.	
Potassium (Metallic Potassium)	Hermetically sealed steel drums, tin cans, and tank cars.	Oxidizes rapidly on exposure to atmosphere, igniting spontaneously if warm enough. Water is decomposed suddenly by contact with potassium, sufficient heat being generated to ignite spontaneously the evolved hydrogen (in the presence of air). Its reaction with water is more violent than that of sodium.	Do not tier if it can be avoided. Keep away from water, avoiding sprinkler systems. Safeguard against mechanical injury of containers.	Smother with an excess of dry graphite or dry sand. Do not use water. See "Remarks."
Potassium Chlorate	Wooden barrels or kegs.	Oxidizing material; explosive when in contact with combustible material.	Isolate from combustible material, acids, and sulphur.	Water is the best extinguishing agent.

(To Be Continued)

how to keep paint from fouling up

SPRAY-BOOTH SPRINKLERS



Sprinkler heads covered with paint residue are unreliable. A coating of low-melting grease prevents paint from clogging parts. Note inverted position of sprinkler heads.

Light manila bags tied over sprinkler heads is one good way to prevent paint residue from stopping sprinkler action.

Plant protection men differ as to the better way of keeping spray booth sprinklers from becoming loaded with paint spray residue. According to Associated Factory Mutual Fire Insurance Companies, laboratory tests have proved that sprinkler heads covered with paint residue are unreliable. The dried paint film retards, and often completely stops, their operation. No one questions the need of some sort of protection, and the main issue is whether light manila bags tied over the heads, or a coating of low-melting grease is better. Either is acceptable to the Factory Mutual Companies.

Some fire departments discourage the use of paper bags and insist on grease being used. The main objection to paper bags is the belief that they retard sprinkler operation, but this is not supported by tests made in the Factory Mutual Laboratories.

However, the paper bags must be light in weight, just as the grease must have a low melting point, if the operation of the sprinklers is not to be unduly retarded. Experience indicates that better maintenance is usually provided when paper bags are used.

MAGNETIC SEPARATORS- AID TO FIRE PREVENTION

BY J. M. SHANK
Assistant General Manager
Dings Magnetic Separator Co.

One week's accumulation of iron removed from grain coming into a large terminal elevator.

TRAMP iron, in the form of nails, wire, broken machining parts, tools, railroad spikes (even shotgun shells have been encountered), represents a source of sparks that are a dangerous fire and explosion hazard in inflammable atmospheres. Nine died in a mattress plant fire in Connecticut, which was attributed to tramp iron. Two lives were lost in a grain elevator fire in Chicago. 76% of fires in textile mills have been attributed to "foreign" substances entering pickers—hundreds of fires annually are traced to tramp iron and many more of "undetermined origin" undoubtedly are started by sparks from iron striking metal in material handling systems.

While magnetic separators are not infallible, they invariably eliminate, or reduce to the vanishing point, fires caused by tramp iron. Despite this, industry has not yet taken full advantage of their capabilities. Most grain and feed mills have magnetic separators but a quick survey indicates that in many cases the separators are of inadequate size or strength or are not in good condition. Very few terminal elevators have magnetic protection. Most big power generating stations using pulverized coal have magnetic separators, yet thousands of plants where health and production depend on steam, do not protect coal stokers against tramp iron damage. Only in the last few years have textile mills and mattress plants taken advantage of magnetic separators and many still are unprotected.

These are surprising conditions when one considers that insurance companies recognize the value of separators by offering lower rates for their use in some industries and that magnetic separators are today available in a wide variety of types and sizes to meet every requirement. *Prices are modest in terms of protection offered and operating expense and maintenance range from nil to a few cents per day.*

Electro vs. Permanent Magnets

Today the most widely applied types of tramp iron separators are available either of electromagnetic or permanent magnet design, each of which has its place and its advantages and disadvantages. Generally it can be said that the permanent magnets available today are most suitable where the iron to be arrested will not be more than a few inches from the magnet face nor traveling at excessive speeds. Permanent magnets are generally characterized by a very high surface strength. Where a deeply pentrating

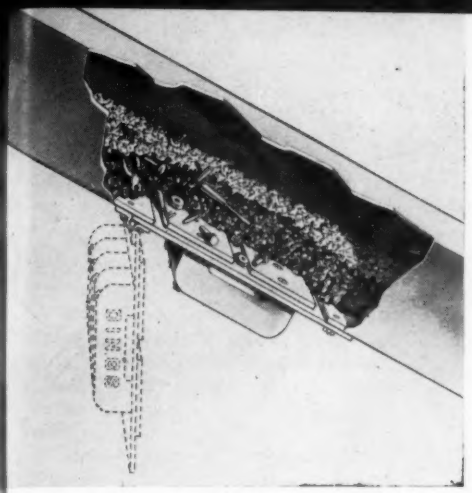


Figure 1.—Magnet installed by cutting away a section of chute bottom. Magnet is hinged so it can be opened to remove accumulated iron.

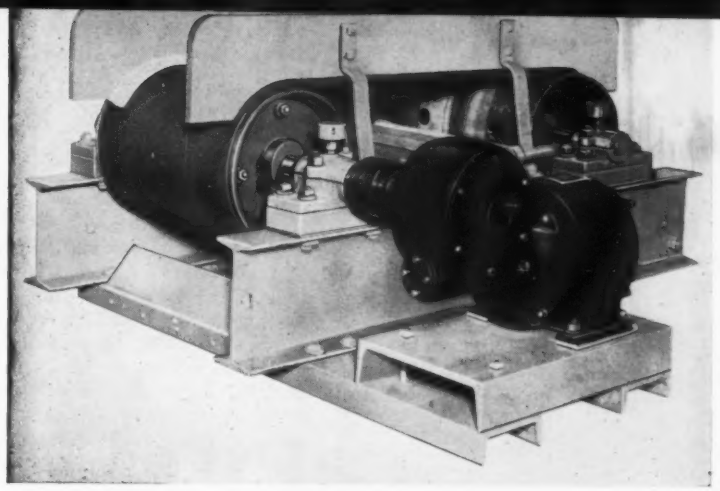
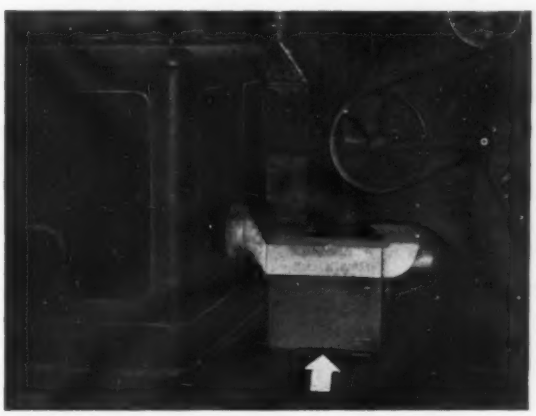


Figure 2.—Self-contained pulley type separator with magnetic pulley, idler pulley, endless belt and motor drive.

magnetic field is required, capable of stopping iron at distances up to as much as 12 inches from the magnet face, studies indicate that electromagnets can be designed for most effective iron removal. Where the permanent magnet fits the picture, however, it is most desirable because there are no electrical connections, no current consumption and no electrical maintenance. Insofar as permanency is concerned, most manufacturers guarantee their non-electric magnets for periods up to life and will recharge them free if any serious weakening occurs. Most permanent magnets are made of Alnico, an aluminum, nickel, cobalt, iron alloy of great strength and permanency patented by General Electric Corporation. The differences in permanent magnets lie in the type or grade of Alnico used, of which there are a number, and the design of the magnet itself.

Figure 3.—Suspended Rectangular Electro-Magnet. Can be built in lengths adequate to arrest iron even though belt speeds are very high, a factor sometimes ruling out pulleys.

Figure 4.—Vertical plate electromagnet installed in cotton mill.



Types of Separators

The basic types of magnetic separators most commonly applied for tramp iron removal are:

1. Spout, or chute magnets—for installation in chutes or ducts (Fig. 1). Available in a variety of sizes and styles, both electric and permanent. Electro types available with automatic gate to discharge iron.

2. Magnetic Pulleys—for use as head pulleys in belt conveyor systems or as head pulleys in completely self-contained pulley type separators. (Figure 2). These separators automatically remove and discharge iron.

3. Suspended Magnets—for suspension above belt conveyors or chutes. Rectangular electromagnets

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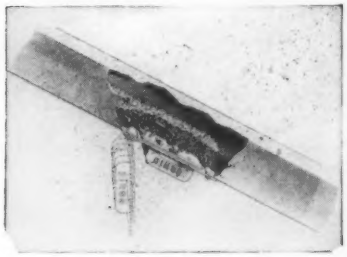

to stop tramp iron cold

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- **Non-Electric**
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- **No Operating Cost**
- **Lightweight**
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- **Easy to Install**
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- **Operates Continuously**

HERE'S the low cost answer to your tramp iron problems—keeps iron out of machinery—prevents contamination of your product—stops the danger of sparks. Dings has incorporated highest grade Alnico into a design that makes greatest possible use of its power. Note the raised pole plates—a mechanical and magnetic barrier combined! Can also be installed flush. For positive, low cost, **permanent** protection install a PERMA-PLATE Magnet in chutes and above belts. Standard widths 4" to 72". Write for BULLETIN TODAY. DINGS MAGNETIC SEPARATOR COMPANY, 4763 W. McGeogh Ave., Milwaukee 14, Wisconsin.

A Complete Line of Permanent and Electromagnets for Every Purpose

Dings MAGNETIC SEPARATION HIGH INTENSITY

most generally applied (Fig. 3).

4. Self-Cleaning Rectangular Magnets—for suspension above belts. These electro-separators automatically discharge iron to the side.

5. Vertical Plate Magnets—commonly used for installation in ducts in textile applications. (Fig. 4).

6. Magnetic Drums—for installation at bottom of chutes or in self-contained drum type separators.

Correct selection of a magnetic separator for a specific application requires a study of all the factors involved. It pays to consult with qualified authorities and your insurance company. And, as with any other safety device, it is poor practice to skimp or save on magnetic protection.

And, in figuring a magnetic separator installation there are other benefits to be considered. Iron damages pulverizers, stokers, crushers, grinders and other machinery. Its presence in food is hazardous to health and life. Its presence in feed has injured or killed thousands of head of valuable livestock. Many plants recover valuable tools and parts with separators, others recover enough iron to realize substantial returns in its scrap value—a foundry in Ohio gets an additional $200 per week in scrap alone. A cosmetics manufacturer takes specks of iron from his product to protect America's beauty. A baby cereal manufacturer uses separators to keep the wrong kind of iron out of baby's diet. There is scarcely an industry that does not encounter tramp iron. Fortunately, there is protection against it.

up the equipment? What kind of pressure gage was in mind when you wrote the story?

Surely you meant your advice to be a safety measure and to point out that pressure equipment is not to be opened until pressure is completely exhausted from the equipment. But 15 pounds "gage" pressure is not atmospheric pressure and indicates that the equipment is still under pressure and represents a hazard. Your story should have included comment that ZERO gage pressure indicates no pressure and a safe condition.—E. A. Milne, 11 High Street, Shelburne Falls, Mass.

Thanks to Reader Milne for his letter. If he looks at the article in question, however, he will find that it does not state 15 pounds "gage pressure." Mr. Milne is 100% correct in his observation in that he is obviously referring to a NORMAL *gage which reads "Zero" when inside pressure of equipment is equivalent to outside or atmospheric pressure. However, outside pressure is, roughly 15psi and an* ABSOLUTE PRESSURE GAGE *will also read 15 pounds which is the equivalent to "zero" on a normal gage.*

The best way to prevent confusion and resulting accidents, however, is to install an interlock device so that doors on pressure equipment can not be opened until it is safe to do so!—Ed.

SPEED—Most workers have the idea that safety slows production. On the contrary, it speeds up your work. If you have the proper guards on your machine, or if you are wearing the proper clothing, you do have to stop or slow down to see whether you are going to be caught in a moving machine.

ATTITUDE—Your attitude toward Safety means a lot. Safety is not to be laughed at, because it is something that protects you. If you take the right attitude toward Safety, then your fellow workers will, also.

FIRST AID—Your medical department plays an important part in Safety. You are cautioned to report all injuries, no matter how small, to your supervisor.

EFFORT—If you make only a small effort to work Safely, you have accomplished something. It only takes a small amount of effort to get in the habit of obeying Safety Rules and doing your job the Safe way.

TIME—If you are injured because of an unsafe practice, you lose time and money by being off your job. In all proability, the time involved in doing your job the Safe way will be considerably less than the time lost if you are injured.

YOU—You are the determining factor in whether Safety in our plant is a success or a failure. The final responsibility rests on your shoulders.—*Acipco News.*

Every year, more than 11,000 lives are lost by fire. Last year, property loss through fire reached a staggering total of more than $600,000,000.

Insurance can give you protection from financial loss through fire. But you need more than protection. You need fire prevention. Fire prevention can help you avoid property loss and—even more important—loss of human life.

The best possible fire prevention you can buy is a GENERAL QUICK AID FIRE GUARD, located within easy access of every possible fire hazard.

Unless you have plenty of money to burn, install plenty of QUICK AID FIRE GUARDS in your place of business, your car, your home. There are five different types of QUICK AID FIRE GUARDS—a right extinguisher for every fire hazard. Your GENERAL dealer will help you select proper extinguishing equipment—without obligation on your part. Look for his name under "Fire Extinguishers" in your classified telephone directory—or write direct.

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MEET THE *Chief*...

OCCUPATIONAL HAZARDS will bring to its readers as a regular feature each month the true, inside story of an industrial fire, stressing HOW AND WHY IT HAPPENED. Each story will be told by the man who heads the fire department of a large city. These authentic accounts by men who devote their lives to fighting fires and to the study of fire hazards are presented to the readers of OCCUPATIONAL HAZARDS with the belief that they will be of value to fire protection men in industrial plants throught the country.

This month's guest writer is the well known Commissioner of Fire from the City of Buffalo. Chief Masterson entered the Buffalo Fire Department in 1917 and now, only 51, has headed that department for over two years. He has devoted much time to the study of industrial fires and we are pleased to pass some of his valuable observations on to our readers.

DUST EXPLOSIONS IN INDUSTRY

By CHIEF JOSEPH S. MASTERSON
Fire Commissioner
Buffalo Fire Department

WHEN it comes my turn to spin a yarn, I like to tell the one about the explosion and fire that took place on March 16, 1945 at the Electric Elevator here in Buffalo. Possibly the reason that I select a dust explosion for my subject is due in great measure to the fact that Buffalo is known to have the largest milling industry in the world, and naturally then, we have an abundance of grain elevators, feed mills, flour mills and cereal plants, all of which add up to a terrific amount of dust; combustible dust; dust that when mixed with air in the right proportions and presented with an open flame, a spark or other source of ignition will explode with atomic-like force.

Unfortunately, the dust hazard is not confined solely to the milling industry. As all of our readers know, it is quite possible to have a dust explosion occur in a good many other branches of industry: for instance, in starch manufacturing, sugar refining, woodworking, sulphur crushing, cork pulverizing, in aluminum, zinc and magnesium plants, fertilizer plants, pyroxylin factories, textile industry and a good many others.

The fire which occurred on March 16, 1945, involved as I said a commercial grain elevator. At the time of the fire, the elevator was loading out white oats to a large lake carrier which was docked alongside the steel frame and sheet metal covered "work house." This eight story "work house," with its two portable marine legs, is used for "loading in" and "loading out" operations of the grain that is stored in massive concrete bins located a short distance from the "work house." Total grain storage for the entire plant is said to be 7,800,000 bushels. When loading out of the concrete bins to ship or rail, the grain travels on conveyor belts through a tunnel from the bin storage house to the work house, from there, it is elevated by bucket lofters and then spouted into car or boat.

At about 4:30 that afternoon, a terrific explosion took place; sections of the sheet metal covering on the roof and walls of the work house were blown through the air to land hundreds of yards from the building. The tunnels and the work house were for a brief second or two engulfed in a blinding sheet of flame. The Fire Department was called immediately, but when the firemen arrived they found there was very

little, if any, fire to fight; fire fighting operations were limited to working a few booster lines and using pails of water to wet down the occasional piles of smoldering dust throughout the eight floors of the elevator and the length of the tunnel. Practically all of one side and a good part of the roof had been blown off. Five men employees were rushed to the hospital suffering serious burns; one man died the following day and it was some time before the others were released from the hospital.

After a thorough investigation, the Fire Prevention Bureau reported that the explosion and fire occurred as a result of a mechanical failure when a link chain driving a conveyor belt in the tunnel broke when it came in contact with a loose guard cover, causing sparks which ignited dust in the air and on ledges. This fire, some distance back in the tunnel, was conveyed on the moving belt as smoldering dust to the work house. In dropping from the conveyor belt to the "boot" of the leg, it appears that the smoldering particles of fire met a pocket of dust and air in favorable mixture for explosion and then it happened. Or it may have been the parts of the steel link chain that were shattered to pieces in the tunnel and possibly carried over to the work house on the conveyor to cause a spark when they were dumped by the belt to the steel boot of the lofter leg. Had it not been for pre-arranged venting facilities in the tunnel, that is, vent hatches, the fire and explosion would certainly have been more widespread to include the inter-connecting bin storage house and most certainly, there would have been a greater loss of life.

As from other dust explosions that have occurred in the past, perhaps we can learn from this case that in order to cut down the chances of a dust explosion to the possible minimum, it is best to

1. Install modern dust collecting systems in buildings where a dangerous concentration of combustible dust might be present due to normal operations.
2. All moving machines must be properly maintained and lubricated, and equipped with "grounds" for the elimination of static.
3. All electric wiring, fixtures, appliances and switches must be of the approved type for use in atmospheres containing combustible dust.
4. Elimination of open flames and all other possible sources of ignition and strict adherence to any no smoking rules.
5. Suitable ventilation of premises during operations and the incorporation of automatic emergency venting facilities.
6. All stair exits to be enclosed in fireproof construction, with self-closing fire doors at each floor opening and stair exit to lead directly to the outside.

We can reasonably expect that there will be more dust explosions occurring within our time, but there will be far fewer explosions and less loss of life will result from them if the foregoing rules of *prevention* and *protection* are applied.

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Useful Literature

UL-1 . . . FIRE ALARM EQUIPMENT. Complete information on Fire Alarm equipment, for anyone concerned with obtaining maximum protection for their property and lives of personnel, is now available in the new Signal and Control Apparatus booklet offered by The Autocall Company.

In this booklet may be found wiring diagrams, illustrations and clear-cut descriptions for the various types of fire alarm systems. Complete data on fire alarm signals and punch and printing recorders is also included in this valuable booklet.

UL-2 . . . ACCIDENT PREVENTION SIGNS. The control of hazards is a vital part of every safety program. Stonehouse Signs, Inc., have ready for release their new 64-page catalogue which lists in color hundreds of different standard stock-worded industrial accident prevention signs. These are grouped under various industrial hazard headings, such as Crane and Derrick Signals, Electrical Hazard signs, Eye Hazard and Goggle signs, Falling Hazard signs, Machine Hazard signs, No Smoking signs, etc. Catalogue includes material, finishes and prices of all Stonehouse Signs.

UL-3 . . . FIREDOORS. The National Metalclad Door Assn., have prepared a booklet entitled, "When is a Firedoor Not a Firedoor?" This booklet will be of much value to those men responsible for plant fire protection and who are confronted with the problem of (1) determining the worth of existing fire doors, (2) replacing a makeshift firedoor with an approved firedoor, or (3) installing fire doors in new plant additions or in old locations where new plant operations demand installation of a firedoor. The booklet is valuable because it describes to the reader the various specifications that a firedoor must meet in order to truly be a firedoor.

UL-4 . . . RADIAL GUARD. Just off the press is a circular giving complete details of the "Flohr" Automatic Radial Guard for use on all portable horizontal tools. The patented guard minimizes the lateral ejection of slag, wires, metal dust or chips, and protects not only the operator, but adjacent workers as well. The wheel or tool is completely enclosed by the new guard, with the exception of the working surface. Entire guard is made of cold rolled steel, cadmium plated to prevent rust and to insure freedom of movement of all parts.

UL-5 . . . ANTI-SLIP FLOORING. Literature prepared by American Abrasive Metals Company describes their anti-slip floor products for safety in the plant. One of their several products, FERROX, is an anti-slip troweling composition which is described as an inexpensive light-weight but durable safety covering which can be applied by anyone handy with a trowel over floors, ramps, platforms, shower stalls and locker rooms. This product was used extensively by the Navy during the war on all classes of fighting ships as an anti-slip decking material, which indicates that the product is extremely resistant to outside weathering and not easily affected by oil.

UL-6 . . . SERVICE AWARDS. A 15-page booklet, entitled, "Service Award Programs," has been published by Award Incentives, Inc. The material explains the benefits which come from a service award program by gaining employee participation and recognition through the use of insignia incentives. Plan C describes the important role of emblems in a well conceived safety program or campaign. The insignia incentive is described as economical to the employer.

UL-7 . . . ASBESTOS HAND PROTECTION. This booklet illustrates and describes the products of A. Pendleton, manufacturers of asbestos cloth products. Asbestos gloves, mittens, sleeves, aprons, blankets and finger cots of this manufacturer are claimed to be especially designed for proper fitting and a maximum of sturdiness for long wear, and provide dependable and effective protection against fire, heat and sparks.

UL-8 . . . FIRE-SAFETY. The essential points for management to have in mind in planning or supervising plant fire-safety are outlined in a 16-page illustrated booklet recently published by the Associated Factory Mutual Fire Insurance Companies.

Each page deals with a separate feature of the overall problem. The broad principles governing construction standards, automatic sprinklers, water supplies and extinguishers are covered, as well as the essential requirements for a good watch service and fire-fighting organization.

UL-9 . . . WIRE ROPE CONNECTORS. Presenting its complete line of Electroline-Fiege wire rope ("They Hold Like a Bulldog") connectors, the Electroline Company announces a new 32-page catalog. Generously illustrated with cut-away views to show how cable and strands are positively anchored, the catalog includes a condensed analysis of the three main types of connections. Catalog is of handy pocket size and is printed in two colors.

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